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ABSTRACT

A project evaluated a delivery system instituted during the 1978-79 school year at a New Berlin, Pennsylvania, area vocational-technical school. Replacing the three-year, two-week-about (alternate two-week periods) system previously in use, this twelfth-year program permitted students to enroll in a one-year, full-time program of instruction. Primary evaluation concerns were comparisons of changed attitudes, social adjustment, and skills and trade knowledge between participants and vocational students. Secondary evaluation concerns were attendance, withdrawals, employer satisfaction, placement, enrollment, teacher attitudes, benefits to handicapped, home school costs, scheduling, and staff opinion. Standardized tests, personal interviews, questionnaires, and examination of various unobtrusive indicators provided data. Results of the study indicated no significant differences between twelfth-year students and other vocational students in skills and trade knowledge, attitudes and social adjustment, attendance, and employer satisfaction. Home school personnel viewed the program positively. The program had a high rate of early drops and no-shows; the number of drops during the school year had not increased. Enrollment to capacity or near capacity was critical to the program's success. (YLB)

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An Evaluation of the SUN Area Vocational-Technical School's Twelfth-Year Program

Central Susquehanna Intermediate Unit
Lewisburg, Pennsylvania
School Unit 1-16-00-000-0

Final Report
September 1, 1980

A PL94-482 Project Sponsored by the
Pennsylvania Department of Education #83-9802

CE 026 494

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ABSTRACT

PA83-9802: An Evaluation of the SUN Area Vocational-Technical School's (AVTS) Twelfth-Year Program.

Central Susquehanna Intermediate Unit	$26,500.00 Federal
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The purpose of the project was to evaluate a new delivery system instituted during the 1978-79 school year at the SUN AVTS, New Berlin, Pennsylvania, which would permit students to enroll in a one-year, full-time program of instruction at the AVTS as seniors. This twelfth-year program would replace the three-year, two-week-about system previously in use at the school.

Objectives

1. Collect and analyze data on the primary evaluation questions: Do students who are enrolled in the twelfth-year program at the SUN AVTS have changed attitudes and social adjustment when compared to students who are not enrolled in the program? Do students enrolled in the twelfth-year program have better skills and trade knowledge than students who are not enrolled in the program?
2. Collect and analyze information on the secondary evaluation concerns: Twelfth-year AVTS attendance, withdrawals, employer satisfaction, placement, enrollment, teacher attitudes, and benefit of the program to handicapped students; home school costs, scheduling, withdrawals, and staff opinion.

Outcomes

A battery of standardized tests, personal interviews and questionnaires was used to collect data on the primary evaluation questions. Examination of various unobtrusive indicators provided data on the secondary questions. Results of the study indicate:

1. That no significant differences were found between twelfth-year students and vocational students not enrolled in the program in: skills and trade knowledge, attitudes and social adjustment, attendance and employer satisfaction.
2. That home school costs and withdrawal rates have not risen; scheduling is easier, and home school personnel view the program positively.
3. That the program has had a high rate of early drops and "no-shows;" the number of drops during the school year has not increased.
4. That enrollment to capacity or near capacity is critical to the program's success; the SUN AVTS has not yet achieved such a high enrollment.

Audience

The evaluation's findings are of interest to school administrators and vocational educators.

Publications and Available Materials

- First-year Report: September 1979
- Preliminary Reports: January 1979, April 1979, and January 1980
- Final Report: September 1980

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INTRODUCTION

In Pennsylvania, vocational education has traditionally been offered on an alternating basis, from one-half day to nine-week or semester-about. There are, however, several problems inherent in rotating patterns of instruction. Students frequently cannot be mainstreamed into the home school's regular classes because of their interrupted schedules; to provide them with adequate instruction, the home schools are forced to isolate them in difficult-to-schedule "tech" sections. The vocational student is thus limited in his or her academic course selection and often lacks the background necessary for vocational-technical study. Placement of vocational students into separate sections creates social difficulties as well. Divided loyalties and prejudice on the part of home school students can create behavior problems which only perpetuate the poor reputation of vo-tech students at their home schools. The rotating pattern of instruction also creates problems for the instructors in maintaining motivation and continuity, both at the AVTS and the home school.

The SUN Area Vocational-Technical School began operation in 1970. It serves five districts in Snyder, Union and Northumberland counties: Lewisburg Area, Midd-West, Mifflinburg Area, Selinsgrove Area and Shikellamy. Twenty courses, providing instruction in art and design, computers, construction, health, mechanical and industrial service, and technical trades are offered. Students from the sending districts apply and are selected for admission through their home school counselors. A quota system is used to determine the number of slots open to each district.

For the first eight years of its operation, the SUN AVTS operated on a two-week-about pattern of instruction, in which students spent two weeks at the AVTS and then reported back to their home schools for two weeks of academic study. Each student spent the equivalent of three semesters--1,620 hours--at the AVTS in grades ten through twelve. The problems associated with the two-week-about arrangement prompted the school's administrator to design a new delivery system whereby many of the difficulties would be eliminated: the vocational-technical program would be offered in the twelfth-year for 180 days, six hours a day, providing 1,080 hours of instruction. The model was provisionally approved by the Pennsylvania Department of Education, to be implemented for a five-year period.

Under the twelfth-year program, a potential AVTS student would remain at the home school until the completion of his/her eleventh grade year, during which time he/she would be required to fulfill his/her minimum senior high graduation requirements as mandated by the PDE: Three units of English, two of social studies, one of mathematics, one of science, and satisfactory completion of the home school's planned programs in health and physical education. Opportunities for the student deficient in any area, such as summer school courses, correspondence courses and private tutoring, would be made available at the discretion of each school's board of education. The senior year physical education requirement would be fulfilled by contracting between the student and home school.

The student would then elect the twelfth-year program at the end of eleventh grade and would attend the SUN AVTS full-time during his/her senior year. No rotation would be necessary. It should be pointed out that the actual time of instruction would be reduced from 1,620 hours under the old program to 1,080 hours under the new program.

The advantages to the twelfth-year program are numerous. Elimination of the alternating pattern of instruction would solve the home school's scheduling problems. The future vocational student would spend an extra semester at the home school, and would not be limited in his/her course selection. With assistance from guidance counselors, these potential vocational students could schedule courses recommended by the AVTS as prerequisites to vocational study. Mainstreaming at the home schools would eliminate the status problems that many alternating students encounter.

With the twelfth-year program, students would be able to delay a final career choice until the end of the junior year, rather than the end of grade nine. A study of the vocational maturity of ninth grade boys (Super and Overstreet, 1960) has suggested that many ninth graders are not ready to make a career choice. Delaying the decision until the eleventh grade would give each student more time to mature, explore, and prepare academically for a career.

The twelfth-year program would open up more student teaching stations, those previously filled by tenth and eleventh grade students, enabling the SUN AVTS to graduate more trained students every year. The additional teaching stations would facilitate the scheduling of each student into the shop of his/her choice. In addition, segments of the school population that previously were not served or were underserved by the AVTS could be accommodated. This would include EMR and handicapped students as well as college-bound students seeking a saleable job skill as well as an academic education. Students who plan to continue their education in electronics, art education, computer technology, engineering, etc., could benefit from a practical hands-on program related to their college career goal.

If the program proposal's enrollment goal of 400 students per year were reached, the twelfth-year program could accommodate 66% more graduating students, with no additional funds or staff required.

According to the program proposal, the loss of 540 hours of instructional time could be offset by the continuity of full-time instruction, as well as the increased maturity and motivation of older students. A study by Kapes and McQuay (1976) supports this supposition: In the study, a group of eleventh graders with one year of shop experience was compared with a group of eleventh graders with two years of shop experience. No significant difference was found in the achievement level of the two groups. The authors suggest that increased vocational maturity and a higher level of motivation enabled the students with one year of training to match the achievement of those with two years of training.

This increased maturity, resulting in a better occupational choice and higher motivation, might be expected to lower the number of students who are unhappy or unsure in their choice of shop, and who subsequently withdraw from the AVTS. It could also be assumed that the attendance of more highly motivated students would be better.

The model adopted for the evaluation of the twelfth-year program was one developed by the Center for the Study of Evaluation at UCLA, which includes five phases: Needs Assessment, in which program needs were identified, Program Planning, in which procedures for assessing the new program were developed, Implementation, Progress Evaluation, and Outcome Evaluation.

PURPOSE AND OBJECTIVES

During the Program Planning stage of the evaluation, two primary evaluation questions were identified:

1. Do students who are enrolled in the twelfth-year program have better skills and trade knowledge than students who are not enrolled in the program?

2. Do students who are enrolled in the twelfth-year program of the SUN AVTS have changed attitudes and social adjustment when compared to students who are not enrolled in the program?

Several secondary evaluation questions were also identified:

3. Is the attendance of twelfth-year students better than that of students not enrolled in the program?

4. Was the number of AVTS withdrawals affected by the implementation of the new program?

5. Was there any change in the satisfaction of local employers with graduates of the SUN AVTS's new program?

6. Has the SUN AVTS been able to increase its enrollment by 66%?

7. Were there any additional costs connected with the new program?

8. Has the new program affected the withdrawal rate at the sending schools?

9. Has the new program simplified scheduling at the sending schools?

10. Have prospective students been able to meet their graduation requirements by the end of eleventh grade?

11. Was there any change in the attitudes of the AVTS teachers as a result of the new program?

12. Are more EMR and handicapped students enrolled and is the program beneficial to them?

13. Have home school administrators and staff reacted positively to the new program?

This study has examined data collected over a two-year period in an attempt to satisfactorily answer the primary and secondary evaluation questions. Because a large amount of information was collected in a potentially confusing variety of methods, this report has been divided into thirteen sections--one dealing with each of the thirteen evaluation questions. Details of methodology, data and instrumentation for each question are described in the appropriate sections.

Limitations of the Study

1. It should be noted that the 1978-79 and 1979-80 students may not be truly representative of the type of student who will be enrolling in the twelfth-year program in the future, since it can be assumed that the most vocationally-oriented students at that grade level elected to enter the AVTS in tenth grade, and are thus already enrolled in the two-week-about program. Only in 1980-81 will a class which had no previous opportunity to enroll in a vocational-technical program enter AVTS. The results of this study, therefore, may not be generalizable in terms of future enrollment.

In addition, the socio-economic characteristics of the total SUN area population, from which the sample was drawn, can be described as predominantly small-town, rural, and middle income, which could limit the generalizability of the study (and the new program) to other populations with markedly different characteristics.

2. The only measures used to compare the achievement of the two groups were Ohio Vocational Achievement Tests. However, for eight of the twenty shops (Commerical Art, Data Processing, Apparel Manufacturing, Agricultural Mechanics, Diesel Mechanics, Graphic Arts, Masonry, and Millwork), no vocational achievement tests were available. Because of time limitations and doubtful reliability, no teacher-made tests were analyzed as a pre- and posttest in these shops.

3. The questionnaires administered to students were constructed with the assistance of AVTS and intermediate unit staff members. Because of the need to reach all students in the sample as soon as possible, they could not be validated and field tested for reliability. Despite this, it is felt that the results of the interviews conducted with the instrument do offer many valid insights into the attitudes and opinions of SUN AVTS students.

Questionnaires constructed for the AVTS teachers and administrators, home school administrators and counselors were made up primarily of open-ended questions, and were also administered in an interview situation.

4. The size of the samples taken for several shops was quite small. Analysis of the test scores in these shops indicates that a larger number of subjects might have yielded significantly different results. A study concentrating on larger samples for a limited number of shops might be in order.

Section One

DO STUDENTS WHO ARE ENROLLED IN THE TWELFTH-YEAR PROGRAM AT THE SUN AVTS HAVE BETTER SKILLS AND TRADE KNOWLEDGE THAN STUDENTS NOT ENROLLED IN THE PROGRAM?

The most significant difference between the twelfth-year program and the old three-year format was the reduction in instructional time, from 1620 to 1080 hours. The program's designer hypothesized that the loss of 540 hours could be offset by the senior students' maturity and motivation, as well as the continuity of instruction and the elimination of many wasted hours caused by bussing problems, cleanup periods, and so on.

To measure the students' skills and trade knowledge, a vocational achievement test was administered to an experimental group of twelfth-year students and a control group of vocational students completing their education under a different program. During the evaluation's first year, the control group consisted of alternating students still attending the SUN AVTS. During the second year, the control was selected from senior students at nearby vocational-technical schools.

General Design

During the first year of the evaluation, a pretest-posttest design was selected for the study in order to control for major threats to internal program validity. During the 1978-79 school year, the twelfth-year program was implemented while the two-week-about program began to terminate. This provided an opportunity to compare the twelfth-year program students with a control group consisting of students in the eleventh and twelfth grades who were still participating on a two-week-about schedule. The differences in program activities between the two groups were primarily differences in scheduling and curriculum. The twelfth-year students received all of their vocational education during the single year of their twelfth grade; students participating in the three-year program received their vocational education over a three-year period on the two-week alternating schedule.

The research design was altered for the project's second year, due to sampling difficulties (see sample section, below). A posttest-only control group design was selected as the best alternative, since this design also controls for the major threats to internal validity. In addition, the posttest-only design eliminated the possibility of testing effect, which is a potential problem in a pretest-posttest.

Sample

In the first year of the study, a modified "matched" sampling technique was utilized. The experimental group consisted of all students enrolled in the twelfth-year program during the 1978-79 school year. The control group was selected from those eleventh and twelfth grade students who were completing their AVTS study on a two-week-about basis.

Control group selection was originally done at the school district level. Guidance counselors at the participating high schools were asked to match each of their twelfth-year students to a two-week-about student with a similar background, using age, sex, test scores and shop choice as the basis for comparison. The matches supplied by the counselors were then revised to eliminate differences in shop and sex wherever possible. The General Aptitude Test Battery (GATB), which is administered by the SUN AVTS to all prospective students, proved useful in matching, since GATB scores were available for almost all students in both groups.

The final pairing yielded a sample of 47 boys and 39 girls in the twelfth-year group, and 52 boys and 34 girls in the three-year control group. Efforts were made to match seniors to seniors, but in several cases, this was impossible. Twenty-two eleventh graders were included in the control.

At the beginning of the evaluation's second year, it became apparent that many senior students who had attended the AVTS's two-week-about program had fulfilled their minimum graduation requirements and were planning to switch into the twelfth-year program. This eliminated the option of using a comparison group of three-year SUN AVTS students, as had been done during Year One of the study.

To provide a comparable control group, staff members contacted three nearby area vocational-technical schools and secured their cooperation. Random samples of senior students at these schools were selected and pooled to provide the control for the evaluation's second year. Thirty-four SUN AVTS twelfth-year seniors and 60 comparison group seniors were included in the sample.

Instrumentation and Analysis Strategies

The Ohio Vocational Achievement Test (Ohio State University, 1979) consists of a four to four and one-half hour occupational achievement test and a brief test of academic aptitude. Vocational achievement tests were available for twelve of the twenty trades taught at the SUN AVTS: Auto Body, Auto Mechanics, Carpentry, Cosmetology, Dental Assisting, Architectural and Occupational Drafting, Electronics, Electrical Occupations, Environmental Control (heating and air conditioning), Machine Trades and Welding. The Ohio Tests are designed to measure a student's basic knowledge and understanding of skills used in the practice of his/her particular trade. Administered with the trade tests is the California Short Form Test of Academic Aptitude (CSFTAA), in which both verbal and non-verbal concepts are used in measuring academic ability.

During Year One of the study, the Ohio Vocational Achievement Test (OVAT) was administered as a pretest and posttest to SUN AVTS students in all twelve appropriate shops.

During Year Two, the OVAT was administered as a posttest only, in five shops: Auto Body, Auto Mechanics, Cosmetology, Drafting and Welding. These shops were selected because their SUN AVTS enrollment was highest.

Informal teacher assessments of student achievement levels were also used as a measure of trade knowledge and skills aquisition.

The following data analysis strategy was used for the major dependent variable in the study, the Ohio Vocational Achievement Test (OVAT), during Year One of the study.

At the time of the pretest, three-year students had already had at least one year of vocational training, versus no training for twelfth-year students. Therefore, rather large group differences were expected to correlate highly with OVAT test performance, it was felt that a measure of this factor, the California Short Form Test of Academic Aptitude (CSFTAA), should be included as a covariate. Finally, as the OVAT battery was comprised of different shop tests, a decision was made to include shop category as a variable in the analysis. These considerations resulted in the decision to perform a three-way analysis of covariance with Section (twelfth-year vs three-year) and Shop as between-subjects independent variables, time of test administration (pre vs. post) as a repeated measure, and CSFTAA scores as the covariate. This overall analysis was to be followed by post hoc simple effects analyses wherever applicable. Data analysis of the OVAT scores during Year Two was considerably less complex, due to the elimination of the CSFTAA as a covariate and the change to a posttest-only control group design. A t-test was used to compare the mean scores of the experimental and control groups.

Regardless of the data analysis performed, an alpha level of .05 was utilized.

Results: Year One

The Ohio Vocational Achievement Test (OVAT) results were analyzed using a mixed three-way unweighted means analysis of variance. Section (twelfth-year vs. three-year--2 levels) and Shop (7 levels) served as between subjects independent variables while the time of test administration (2 levels) was included as a repeated measure. Scores from the California Short Form Test of Academic Aptitude (CSFTAA), administered at the same time as the OVAT pretest, were initially collected to be used as a covariate in the analysis. However, inspection of the correlations between CSFTAA scores and OVAT pretest results for the two levels of the section variable (collapsed across shop) showed large between group differences, with r = .50 for the three-year group, while for the twelfth-year section, r = .17. In addition, correlations within shops (collapsed across sections) failed to follow a predictable pattern, ranging from the Welding shop where r = .81, to the Auto Body shop where the correlation was .40 (one other shop, the combined Technical Occupations, had a near zero correlation, r = .01). The absence of a stable linear relationship within experimental groups between CSFTAA scores and OVAT pretest scores violates one of the major assumptions of the analysis of covariance. It was determined, therefore, that the CSFTAA scores would not be used as a covariate.[1] An unweighted means procedure was employed in order to give each shop an equal weight in the analysis despite the presence of unequal numbers of subjects in different shops.

The seven levels of shop variable were defined in the following manner. Homogeneous shop categories were Auto Body (n=17), Auto Mechanics (n=14), Carpentry (n=8), Cosmetology (n=10), and Dental Assisting (n=10). Environmental Control (n=2), Electrical Occupations (n=4), and Drafting (n=4) were combined into a pseudo-shop category termed Technical Occupations (n=10). Finally, the Machine Shop students (n=2) were added to Welding (n=18) to form the seventh shop category. Since the OVAT tests used different answer keys for the various shop tests, percentile scores (standardized nationally within shop categories) were employed in all of the analyses. The use of percentile scores permitted different shops to be combined under one heading (as with the Technical Occupations group), and also allowed the pooling of all shops within each section for an overall analysis of section differences.

The results of the Section x Shop x Time Anova are presented in Table 1.1. As the summary table indicates, significant main effects were found for both the Section and Time factors. Collapsed across pre and post OVAT tests, the three-year section scored significantly higher ($\bar{X}$=39.6, SD=26.3) than the twelfth-year group ($\bar{X}$=25.9, SD=15.6), while overall, the mean for the OVAT posttest ($\bar{X}$=40.2, SD=26.2) was significantly greater than the pretest mean ($\bar{X}$=25.7, SD=22.6). These findings, however, are to a large extent meaningless given the presence of significant Time x Section, Time x Shop, and Time x Section x Shop interactions. Since the primary focus of this investigation was a comparison of the two section groups at time 1 (pretest) and time 2 (posttest), a simple main effects analysis was performed on the Time x Section interaction means.[2]

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[1] To check on the possibility of "intelligence" differences between experimental groups, the CSFTAA scores were analyzed by a two-way Anova (Section x Shop). A main effect for shop was found, (F(6,75) = 2.66, $p<.05$), however, no section main effect was apparent, (F(1,175) = 1.52, $p<.05$). While these results do indicate that differences existed between various shops on the CSFTAA scores, the absence of section differences and the lack of a significant section by shop interaction (F(6,75) = 1.42, $p<.05$) suggests that the subject assignment procedure was successful in equating the experimental and control groups on intelligence.

[2] For all specific group comparisons, equal weight was assigned to each cell mean by using the harmonic mean instead of the actual number of subjects per cell. In addition, the error term used for between groups comparison was formed using a weighted average of the two error terms reported in the Anova Summary Table (Winer, 1971). Finally, the alpha level was set at .05 for each comparison (i.e., no correction was made for multiple comparisons).

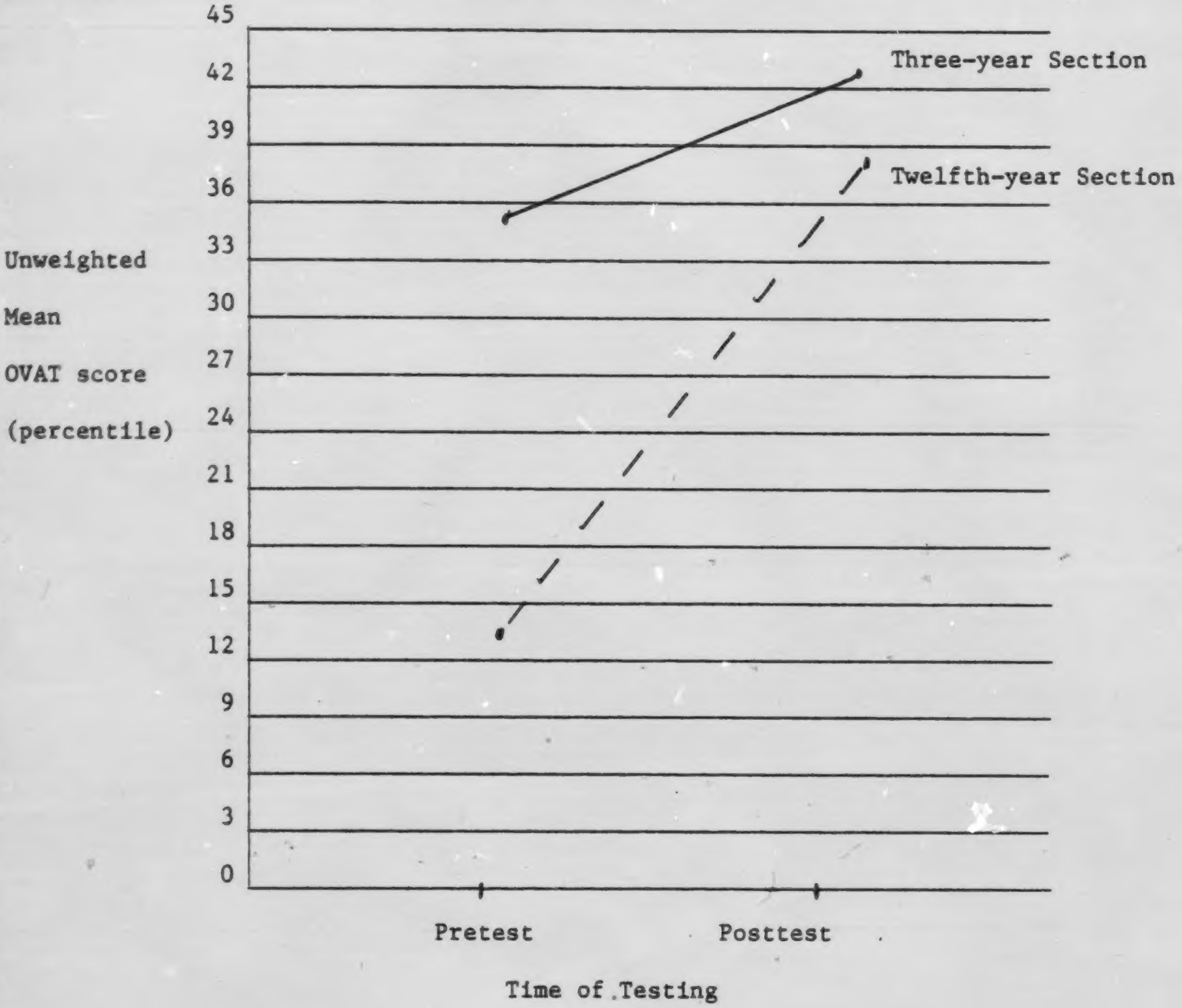
TABLE 1.1
A Partial Summary Table of the Section x Shop x Time Anova

Source	df	MS	F	Significance
Section	1	7356.4	7.75	p<.01
Shop	6	1181.7	1.24	ns
Section x Shop	6	1057.5	1.11	ns
Error between	75	949.3		

Source	df	MS	F	Significance
Time	1	9583.1	116.31	p<.001
Time x Section	1	2533.3	30.75	p<.001
Time x Shop	6	244.9	2.73	p<.05
Time x Section x Shop	6	269.7	3.73	p<.01
Error within	75	82.4		

[illegible] graphic depiction of the Time x Section interaction is shown in Figure 1.1. On the OVAT pretest, three-year students scored significantly higher than their twelfth-year counterparts, with a mean of 35.6 as compared to 14.2. While both groups improved significantly on the OVAT posttest, the increase in the twelfth-year mean to 37.5 was much more dramatic than the three-year section's increase to a mean of 43.1. This differential rate of improvement is evident in the fact that there was no significant difference between the twelfth-year and three-year section posttest means. In summary then, the significant Time x Section interaction indicated that while large differences in technical knowledge existed between the two groups at the time of the OVAT pretest, these differences had disappeared by the time the posttest was administered.

FIGURE 1.1
Time x Section Interaction



In order to further clarify the results, a simple effects analysis of the Time x Section x Shop interaction means was performed. Means and standard deviations for this analysis are presented in Table 1.2. Comparisons were restricted to the following two types: 1) simple effects analysis of the Section factor for a given combination of the Shop and Time variables; and 2) simple effects analysis of the Time factor for given levels of Section and Shop. Overall, the results showed that within the various shops, different patterns of test results emerged. On the OVAT pretest, all of the three-year shop sections had means that were directionally higher than their twelfth-year shop counterparts, but these differences were significant only for the Auto Mechanics, Carpentry, and Cosmetology shops ($p<.05$). Concerning changes from the pretest to the posttest, once again all shops in both sections had higher means on the posttest. However, for the three-year section, this improvement on the posttest was significant only for the Auto Body and Cosmetology shops while for the twelfth-year section, every shop except Auto Body demonstrated significant improvement. Finally, and perhaps most importantly, analysis of the OVAT posttest scores showed no significant differences between the two groups for any of the individual shops. This finding mirrored the results of the analysis collapsed across shops (the Time x Section interaction)and lends support to the contention that no major group differences were apparent by the time of the posttest.

TABLE 1.2
Means and Standard Deviations of OVAT Percentile Scores Broken Down by Section, Shop and Time of Test

			Time			
			Pretest		Posttest	
Section	Shop	Number	Means	SDs	Means	SDs
Three-Year Section	Auto Body	9	33.0	17.0	44.8	27.6
	Auto Mechanics	8	56.2	23.7	57.9	27.0
	Carpentry	4	43.5	16.4	52.5	27.5
	Cosmetology	5	37.8	29.8	54.6	34.9
	Dental Assistant	5	14.6	15.5	17.6	19.3
	Technical Occupation	5	34.4	27.1	38.2	35.7
	Welding	10	29.9	27.2	36.3	32.9

			Time			
			Pretest		Posttest	
Section	Shop	Number	Means	SDs	Means	SDs
Twelfth-Year Section	Auto Body	8	25.5	17.1	34.4	20.0
	Auto Mechanics	6	18.5	18.9	35.8	25.9
	Carpentry	4	12.5	14.9	26.0	25.1
	Cosmetology	5	10.6	6.8	42.6	20.3
	Dental Assistant	5	10.4	8.4	36.2	14.2
	Technical Occupation	5	11.2	10.6	55.2	27.0
	Welding	10	10.8	7.6	32.6	15.5

Results: Year Two

During the second year, the Ohio Vocational Achievement tests were administered as a posttest only. Given severe time limitations and scheduling problems with test administration, and given the previous year's finding that California Short Form Test of Academic Aptitude (CSFTAA) scores were not useful as a covariate in data analysis, the decision was made to eliminate the CSFTAA from the test battery. In addition, it was expected that randomization of subject selection would control for possible selection bias.

Testing was conducted in five shops: Auto Body, Auto Mechanics, Cosmetology, Drafting, and Welding. As before, percentile scores, rather than raw scores, were used in the analysis, so that scores could be pooled across shops.

Means of the percentile scores were compared using a t-test.

Results of the overall comparison of SUN AVTS twelfth-year students versus the AVTS control group are shown in Table 1.3.

TABLE 1.3

Section	Mean	S.D.	t-Value	Significance
Twelfth-year N=34	41.382	26.943	1.004	n.s.
Control N=60	36.3	21.469		

No significance difference was found between the twelfth-year mean and that of the control, indicating that at the time of the posttest, the two groups were equal in vocational achievement, as measured by the OVAT.

A comparative analysis of scores between individual shops was undertaken to determine whether any significant differences existed in specific trades between the experimental (twelfth-year) and control groups. Results of the t-tests are shown in Table 1.4

Analysis revealed that no differences existed between experimental group and control group achievement in any shop.

TABLE 1.4
Means, Standard Deviations and Significance Levels by Group and Shop

Shop	Twelfth-year	N	Mean	S.D.	t Value	Significance
Auto Body	Twelfth-year	4	55.25	34.257	1.876	n.s.
	Control	13	34.769	12.735		
Auto Mechanics	Twelfth-year	15	35.666	24.315	.5003	n.s.
	Control	12	30.833	23.652		
Cosmetology	Twelfth-year	5	46.6	37.152	1.072	n.s.
	Control	16	31.687	23.784		
Drafting	Twelfth-year	4	36.75	11.470	1.201	n.s.
	Control	14	49.5	20.022		
Welding	Twelfth-year	6	45.166	30.577	.5998	n.s.
	Control	5	31.2	22.917		

Discussion

Results of both Year One and Year Two analysis showed no significant differences between the achievement of SUN AVTS twelfth-year seniors and their vocational school counterparts who were enrolled in longer alternating programs. The Ohio Vocational Achievement Test was the only instrument used to measure trade knowledge and skills acquisition, other than informal teacher assessment.

Year One interviews with teachers at the SUN AVTS (see Section Nine for a detailed discussion) indicated that 70 percent of the faculty felt that their twelfth-year students' achievement was equivalent to or better than that of students enrolled in the old program. Forty percent, however, indicated that they had not been able to cover the range of material they had covered previously, and that they had had no choice but to cut material from their program of instruction.

In Year Two interviews, three faculty members expressed the opinion that while the "on paper" achievement of twelfth-year students may have been equal to that of three-year students, the loss of instructional time made it impossible for twelfth-year students to achieve an equivalent level of manual or manipulative skills. These teachers stated that the loss of practice time, coupled with the elimination of some subject matter, enabled them to give twelfth-year students no more than entry-level trade skills.

It may be concluded from the Year One and Year Two study results that students enrolled in the twelfth-year program at the SUN AVTS have acquired trade knowledge equivalent to that of vocational students not enrolled in the program. However, teacher opinion indicates that while equal knowledge acquisition is possible with the twelfth-year format, equal manipulative skills acquisition may not be. This indicates a need for continued monitoring of twelfth-year student achievement. Examination of specific competencies in each trade area--use of tools, techniques, quality of workmanship, and so on--might be in order if such a study is feasible.

Students enrolled in the twelfth-year program are able to reach a trade knowledge level equal to their three-year counterparts, and are able to acquire entry-level trade skills. They are more limited in the scope of their vocational training than were three-year students because the reduction in instructional time limits the amount of material that can be taught in some shops. It is possible that the actual manipulative skills of three-year vocational students are better, because of increased practice time. Further study of this aspect of the program is in order.

DO STUDENTS ENROLLED IN THE TWELFTH-YEAR PROGRAM AT THE SUN AVTS HAVE CHANGED ATTITUDES AND SOCIAL ADJUSTMENT WHEN COMPARED TO STUDENTS NOT ENROLLED IN THE PROGRAM?

Attitudes and social adjustment were measured using a battery of instruments ranging from personality tests to informal interviews. It was hypothesized in the program's proposal that twelfth-year students could be expected to display a higher degree of vocational maturity and motivation, as well as a more favorable attitude toward their school and their vocational program.

General Design

The study design for this evaluation question, a pretest-posttest design, was identical to that used for Question 1. During 1978-79, it was possible to compare twelfth-year seniors with a sample of two-week-about students. Several pretests and postests were administered.

During the 1979-80 school year, the test battery was eliminated. A questionnaire designed to measure student attitudes was administered to twelfth-year seniors and a comparison group of the remaining two-week-about, three-year students.

Sample

In Year One, (1978-79), the sample drawn for the Ohio Vocational Achievement testing was also used, intact, for the attitudinal testing. The matched sample consisted of 47 male and 39 female twelfth-year students, and 52 male and 34 female students in the three-year group.

The 1979-80 sample was comprised of 95 twelfth-year students and the 85 students still enrolled in the two-week-about program at the SUN AVTS.

Instrumentation

The following instruments were included in the attitudinal test battery:

The Career Maturity Inventory (Crites, 1978) was developed to measure the maturity of attitudes and competencies critical to realistic decision making. The CMI provides several types of measures: the Attitude Scale, which solicits the feelings, subjective reactions, and dispositions that an individual has toward making a career choice and entering the world of work, and four competency tests. Because of time limitations, only one competency test, Knowledge About Occupations, was used. This section of the competency test measures the more cognitive variables involved in choosing an occupation. Combined, the two scales provide an inventory of the critical behaviors in mature career decision making and development.

The Sixteen Personality Factors Questionnaire (Cattell, 1967), is a multi-dimensional set of 16 questionnaire sets designed to provide information about an individual's standing on the primary personality factors covered by existing research. The instrument provides information useful for vocational counseling and information to help assess the social adjustment factor of students participating in the study. The Sixteen Personality Factors Questionnaire (16PF), 1969 edition, Form D, was administered to all students in the sample.

An interview form was constructed to provide information about student attitudes toward specific aspects of their vocational program: their satisfaction with the program and shop in which they were enrolled, attitude toward home school, future plans, involvement in school activities, etc. A series of free response questions solicited any comments of suggestions they might have. The twenty-two item main section of the form, which might be termed a "Satisfaction Index," was designed so that each student's response could be scored. The questionnaire was administered during a personal interview by a member of the evaluation staff. Each student was interviewed twice during the 1978-79 school year; first interviews were conducted in October and November, while the second round was completed in March. All interviews were conducted by the same investigator using the same scorable interview schedule; during the second interview, however, fewer specific open-ended questions were included. Instead, students were encouraged to make any comments concerning the program that they felt were important. All students were assured that individual interview results would be kept strictly confidential.

The Perceived Stress Index (Jacobs & Munz, n.d.), a short checklist designed to be sensitive to levels of stress, was administered to each subject during the personal interviews.

The questionnaire administered to the 1979-80 sample was a written version of the Satisfaction Index. It required students to select and check their responses on 22 items and answer a limited number of open-ended questions. The Index was administered to all students in the sample late in the fall of 1979. As before, all students were assured of the confidentiality of their responses.

Analysis Strategies

Year One: Since the dependent measure in question was of a type where, a priori, no group differences were expected on the pretest, an analysis of covariance procedure was utilized in analyzing posttest results with the respective pretest score included as covariate. This approach was used with the Sixteen Personality Factors Questionnaire, the Career Maturity Inventory, the Perceived Stress Index, and the Satisfaction Index dependent variables. A covariance procedure was utilized in order to statistically equate the twelfth-year and three-year groups on a given pretest measure prior to an analysis of the posttest scores. To test the assumption of no significant group differences at the time of the pretest, a t-test was performed on each of the covariates (pretests). Finally, no shop comparisons were made for these measures.

Year Two: A t-test was performed on the results of the Satisfaction Index to determine if any significant difference existed between the means of the two groups.

Test Results: Year One

Career Maturity Inventory

The Career Maturity Inventory (CMI) is comprised of two subtests: 1) the Attitude Scale (CMIAS), which is designed to measure attitudes concerning the career decision making process, and 2) the Competency Test (CMICT), which assesses a student's knowledge of a range of occupations. A one-way analysis of covariance was performed on each of the two parts of the CMI posttest using Section (twelfth-year vs. three-year) as the independent variable and the respective pretest CMI subtest score as the covariate. Standard scores were used in both analyses. Several subjects were eliminated from the analyses based on their raw scores. For the CMIAS test, all students whose posttest score was at least ten points less than their pretest score were deleted prior to the covariance analysis. On the CMICT, the criterion for removal was a drop from pre- to posttest of at least seven points. This procedure was utilized because of the suspicious nature of the extreme change scores apparent in a few subjects. The resultant number of subjects per cell was: 1(CMIAS--three-year group, n=79, twelfth-year group, n=78; and 2) CMICT--three-year group, n=75, twelfth-year group, n=75.

CMI Attitude Scale

No significant differences between the two sections were apparent on the covariance analysis of the CMIAS posttest scores, F(1,154) 1. This finding mirrored the results of a t-test on the covariate (CMIAS pretest) which also demonstrated no group differences on the CMI Attitude Scale, $t(155) = -.83$, $p > .41$. The pretest and adjusted posttest means and standard deviations are presented in Table 2.1.

CMI Competency Test

The analysis of covariance of the CMICT data revealed a difference between groups that approached significance, $F(1,147)$, $= 3.26$, $p > .08$. Three-year students, with an adjusted posttest mean of 52.92, were marginally more knowledgeable than twelfth-year students, whose adjusted posttest mean was 50.76 (see Table 2.1). A t-test on the covariate showed no group differences on the CMICT pretest ($t(148) = .14$, $p > .81$), therefore, the observed differences on the posttest would seem to be attributable to the different school programs. However, while the posttest difference did approach statistical significance, it accounted for very little of the total variance on the CMICT scores ($eta^2 = .01$). Thus it is suggested that the findings on the Career Maturity Inventory Competency Test represented a relatively unimportant difference between the two groups.

TABLE 2.1

Section	N Per Group	Pretest Means and Standard Deviations	Adjusted Posttest Means and Standard Deviations*	Covariance F Value (df=1,159)	Significance Level
		CMI -- part 1 (Attitude Scale -- standard scores) (df = 1,154)			
Three-year	79	M=47.08$_a$ SD=9.45	M'=48.87 SD=9.85	1	----
Twelfth-year	78	M=43.45 SD=11.17	M'=49.89 SD=12.53		
		Pretest t (155 = -.83, $P < .41$			
		CMI -- part II (Competency -- standard scores) (df = 1,147)			
Three-year	75	M=50.20$_a$ SD=10.45	M'=52.92 SD=10.66	3.263	$p < .08$
Twelfth-year	75	M=49.76 SD-11.72	M'=50.76 SD=12.73		

Sixteen Personality Factors Questionnaire

The posttests for each of the Sixteen Personality Factors subtests were analyzed by a one-way analysis of covariance. Section (twelfth-year vs three-year) was the between-subjects independent variable while the pretest for each respective 16PF subtest was included as the covariate. In addition, a t-test was performed on each of the subtest covariates (pretests) to determine whether the two experimental groups were equated on the personality dimensions at the outset of the investigation. Standard scores were used for all of the following analyses.

The t-tests on the pretest 16PF scores revealed only one subtest with significant between-groups differences. On the "Trusting versus Suspicious" subtest, the three-year group had a mean of 6.01 compared to a mean of 5.18 for twelfth-year students ($t(161)=2.91$, $p>.01$). These means indicated that three-year students tended significantly more to the suspicious end of the scale than twelfth-year students. In addition, two subtests revealed marginally nonsignificant group differences: 1) "Superego Strength" ($t(161)=1.86$, $p>.07$), and 2) "Scholastic Mental Ability" ($t(161)=1.70$, $p>.10$). On the Superego scale, the three-year group had a smaller mean than the twelfth-year group, $\bar{X} = 5.26$ and $\bar{X} = 5.80$ respectively, while on the Scholastic Ability test, the three-year students' mean of 5.2 was greater than that of twelfth-year students ($\bar{X} = 4.78$). Taken as a whole, these findings suggest that in terms of personality factors, the two experimental groups were fairly equivalent at the time of the pretest.

The covariance analyses of the 16PF posttests revealed three subtests with significant between-group differences; "Self-Reliance" ($F(1,160) = 4.82$, $p>.03$), "Self-Sufficiency" ($F(1,160) = 6.35$, $p>.02$), and "Self-Discipline" ($F(1,160) = 4.45$, $p>.04$). On all three of these tests, the adjusted posttest means for twelfth-year students significantly exceeded those for the three-year sample (see Table 2.2 for all subtest means), indicating greater degrees of self-reliance, self-sufficiency, and self-discipline among twelfth-year students by the time of the posttest. A similar pattern of results, although marginally nonsignificant, was evident on the "Conservative versus Experimenting" test where twelfth-year students tended more toward the "experimenting end of the scale than three-year students ($F(1,160) = 3.55$, $p>.06$). Finally, on the "Scholastic Ability" subtest, the three-year section showed a marginally greater adjusted mean than the twelfth-year group ($F(1,160) = 3.04$, $p>.09$). In summary, the results of the 16PF analyses demonstrated significantly greater adjusted posttest means on a series of three tests that related to self-efficacy. However, given the fact that 13 out of 16 subtests failed to show significant differences between sections, it would seem that the two programs had a generally similar impact on personality factors in the students of this sample.

TABLE 2.2

Section	N Per Group t Test on Pretest Means	Pretest Means and Standard Deviations	Adjusted Posttest Means and Standard Deviations*	F. Value (df=1,160)	Significance Level
A. Outgoing versus Reserved					
Three-year	81	M = 5.27_a SD = 1.59	M' = 5.12 SD = 1.53	<1	----
Twelfth-year	82	M = 5.07 SD = 1.90	M' = 5.27 SD = 1.74		
		a) Pretest t (161) = .73, p<.47			
B. Scholastic Mental Capacity					
Three-year	81	M = 5.21_a SD = 1.42	M' = 5.35 SD = 1.95	3.04	P<.09
Twelfth-year	82	M = 4.83 SD = 1.73	M' = 4.92 SD = 1.62		
		a) Pretest t (161) = 1.70, p<.10			
C. Emotional Stability					
Three-year	81	M = 5.09_a SD = 1.78	M' = 5.27 SD = 1.43	<1	----
Twelfth-year	82	M = 4.96 SD = 1.82	M' = 5.39 SD = 1.84		
		a) Pretest t (161) = .39, p<.70			
D. Aggressiveness versus Submissiveness					
Three-year	81	M = 5.56_a SD = 1.71	M' = 5.25 SD = 1.84	<1	----
Twelfth-year	82	M = 5.80 SD = 2.16	M' = 5.52 SD = 2.15		
		a) Pretest t (161) = .79, p<.44			
E. Sober versus Happy-Go-Lucky					
Three-year	81	M = 5.19_a SD = 1.74	M' = 5.35 SD = 1.71	<1	----
Twelfth-year	82	M = 5.06 SD = 2.06	M' = 5.34 SD = 1.97		
		a) Pretest t (161) = .50, p<.62			
F. Superego Strength					
Three-year	81	M = 5.26_a SD = 1.7	M' = 5.65 SD = 1.63	<1	----
Twelfth-year	82	M = 5.80 SD = 1.9	M' = 5.64 SD = 1.88		
		a) Pretest t(161) = -1.86, p<.07			
G. Venturesome versus Shy					
Three-year	81	M = 4.95_a SD = 1.74	M' = 5.21 SD = 1.64	<1	----
Twelfth-year	82	M = 5.05 SD = 1.52	M' = 5.39 SD = 1.86		
		a) Pretest t (161) = -.15, p<.89			
H. Self-Reliance					
Three-year	81	M = 4.77_a SD = 1.51	M' = 4.80 SD = 1.38	4.82	p<.03
Twelfth-year	82	M = 4.89 SD = 1.55	M' = 5.26 SD = 1.75		
		a) Pretest t (161) = -.53, p<.60			
I. Trusting versus Suspicious					
Three-year	81	M = 6.02_a SD = 1.84	M' = 5.57 SD = 1.76	<1	----
Twelfth-year	82	M = 5.22 SD - 1.86	M' = 5.60 SD = 1.76		
		a) Pretest t (161) = 2.91, p<.01			
J. Practical versus Imaginative					
Three-year	81	M = 5.35_a SD = 1.41^1	M' = 5.14 SD = 1.43	<2	----
Twelfth-year	82	M = 5.57 SD = 1.61	M' = 5.22 SD = 1.57		
		a) Pretest t (161) = -.99, p<.33			
K. Artless versus Shrewd					
Three-year	81	M = 5.58_a SD = 1.65	M' = 5.88 SD = 1.48	<1	----
Twelfth-year	82	M = 5.79 SD = 1.76	M' = 5.81 SD = 1.51		
		a) Pretest t (161) = -.76, p<.45			

TABLE 2.2 cont'd.

Section	N Per Group t Test on Pretest Means	Pretest Means and Standard Deviations	Adjusted Posttest Means and Standard Deviations*	F Value (df=1,160)	Significance Level
L. Self-Assurance versus Apprehensive					
Three-year	81	$M = 5.60_a$ SD = 1.86	$M' = 5.54$ SD = 1.80	<1	----
Twelfth-year	82	$M = 5.87$ SD = 2.21	$M' = 5.63$ SD = 1.92		
		a) Pretest $t\ (161) = -.86$, $p<.40$			
M. Conservative versus Experimenting					
Three-year	81	$M = 5.06_a$ SD = 1.40	$M' = 4.78$ SD = 1.34	3.66	$p<.06$
Twelfth-year	82	$M = 4.90$ SD = 1.61	$M' = 5.17$ SD = 1.41		
		a) Pretest $t\ (161) = .77$, $p<.45$			
N. Self-Sufficiency					
Three-year	81	$M = 4.85_a$ SD = 1.62	$M' = 4.59$ SD = 1.41	6.35	$p<.06$
Twelfth-year	82	$M = 5.10$ SD = 1.74	$M' = 5.14$ SD = 1.61		
		a) Pretest $t\ (161) = -.93$, $p<.36$			
O. Self-discipline					
Three-year	81	$M = 5.42_a$ SD = 1.66	$M' = 5.21$ SD = 1.61	4.54	$p<.04$
Twelfth-year	82	$M = 5.30$ SD = 1.90	$M' = 5.71$ SD = 1.87		
		a) Pretest $t\ (161) = .29$, $p<.78$			
P. Relaxed versus Tense					
Three-year	81	$M = 6.20_a$ SD = 1.51	$M' = 5.96$ SD = 1.45	<1	----
Twelfth-year	82	$M = 6.15$ SD = 1.91	$M' = 5.78$ SD = 1.76		
		a) Pretest $t\ (161) = .29$, $p<.78$			

Satisfaction Index

The scored section of the interview schedule was designed to serve as an index of the satisfaction of students with their school and program. The two scores of each student were analyzed as pre- and posttests.

The results of the Satisfaction Index posttest were analyzed using a one-way analysis of covariance with Section as the independent variable (2 levels) and the pretest index score as the covariate. The results, as demonstrated in Table 2.3, indicate that twelfth-year students were significantly more satisfied than three-year students by the time the posttest index was administered, ($F(1,158)=10.71$, $p<.01$). A t-test of the Satisfaction Index pretest scores showed that the twelfth-year group was also significantly more satisfied than the three-year group at the outset of the investigation, ($t(159)=4.71$, $p<.001$). The adjusted posttest cell mean for twelfth-year students was 1.66 as compared to a mean of 1.78 for three-year students (for the Satisfaction Index, the scale ranged from one to five with one indicating the greatest possible degree of satisfaction). While this mean difference is significant, caution should be used in interpreting this finding, given the overwhelmingly positive responses on the index for both groups of subjects. The variances within each section were quite small ($s^2 = .11$ for the three-year group, $s^2 = .07$ for the twelfth-year group) and only four subjects out of 161 had index scores greater than 2.5 (3 = midpoint of the scale). In summary, while the twelfth-year section's adjusted mean index score was significantly different from that of the three-year students', both groups appeared to be quite satisfied with the programs at the SUN AVTS at the time of the index posttest.

TABLE 2.3

Section	N Per Group	Pretest Means and Standard Deviations	Adjusted Posttest Means and Standard Deviations*	F Value (df=1,158)	Significance Level
		Satisfaction Index			
Three-Year	80	M=1.87a SD=.35	M=1.78 SD=.33	10.71	P<.002
Twelfth-year	81	M=1.63 SD=.29	M=1.66 SD=.26		
		a) Pretest (t(1,159) = 4.71, p<.001)			

Perceived Stress Index

The Perceived Stress Index (PSI) posttest scores were analyzed using a one-way analysis of covariance with Section (2 levels) as the independent variable and the PSI pretest as the covariate. A summary of the results of this analysis is presented in Table 2.4. The findings indicate that no significant differences existed between the twelfth-year and three-year sections on the adjusted posttest PSI scores, ($F(1,159)=1.47$, $p<.23$).

Similarly, the t-test on the covariate revealed no significant section differences on the pretest measure of stress, ($t(160)=.48$, $p<.63$). The adjusted posttest means for both groups, $\bar{X}=9.49$ and $\bar{X}=9.75$ respectively, fall in the middle range of the possible scale values (the actual scale mid-point = 10); thus, the results from this variable tend to be inconclusive and show no group differences.

TABLE 2.4

Section	N Per Group	Pretest Means and Standard Deviations	Adjusted Posttest Means and Standard Deviations*	Covariance F Value (df=1,159)	Significance Level
		Perceived Stress Index			
Three-Year	81	M=9.21a SD=1.65	M=9.49 SD=1.33	1.47	$P<.23$
Twelfth-year	82	M=9.33 SD=1.63	M=9.75 SD=1.33		
		Pretest ($t(160) = -.48$, $p<.63$			

Test Results: Year Two

The survey form or Satisfaction Index used in the Year One study was administered to all new full-time students and a sample of remaining two-week-about students in November and December 1979. The sample consisted of 97 twelfth-year students and 85 three-year students.

The surveys were hand scored during December. Raw scores could range from 20 to 100; a lower score on the index reflects a higher degree of satisfaction with various aspects of the AVTS's programs. A t-test was performed on the raw scores of the samples.

TABLE 2.5
Satisfaction Index t-test Results

	N	Mean	S.D.	t Value	Significance
Twelfth-year	97	40.07	10.07	4.01	.001
Three-year	85	45.68	8.58		

The analysis indicates that the twelfth-year full-time students are significantly more satisfied with their educational program than are the three-year two-week-about students. However, both groups' means are well within the satisfied range of scores. Both groups appear to have quite positive attitudes toward the AVTS.

The results of the fall 1979 survey support those of the 1978 student attitude survey, from which the same conclusions were drawn.

Student Surveys

A portion of both the student interview and written questionnaire forms were devoted to open-ended questions addressing some of the problems and advantages of attending the AVTS. Student responses to these questions are presented in the following pages. It shold be noted that students were not limited to one response per question. Also, students were not forced to answer all questions and some did not. The percentages given are based on the number of students in the sample who gave any particular response. Only the most frequently given responses are listed; thus, percentages will not total 100 percent in most cases. A listing of all responses is available from staff records.

	1978-79		1979-80	
	Twelfth-Year	Three-Year	Twelfth-Year	Three-Year
Why did you enroll at the SUN AVTS?				
I wanted to learn a trade; was interested in this field.	46%	60.4%	47.5%	28%
The training I get here will help me get a job.	8%	15%	18.5%	22%
This training will help me in college.	2.3%	1.2%	----	2.3%
I wanted to get away from home school.	9%	5%	6.2%	3.5%
I wanted to learn something.	7%		6.2%	5%
I thought I'd like it.	----	5.8%	3%	3.5%
What are the advantages of attending the AVTS?				
You learn a skill you wouldn't get at home school.	23%	26%	----	33%
You can get a better job after graduation.	15%	25%	48.4%	19%
We learn more useful things here.	20%	3%	14.4%	3.5%
You can work all day, no switching with home school.	13%	----	3%	----
You meet people from other schools.	4.7%	5.8%	4%	5%
You can work at something you like and are interested in.	7%	4.7%	9.3%	5%
What are the disadvantages?				
There are none.	61%	45%	40%	30.6%
Exclusion from home school activities.	10.5%	17.4%	9.3%	26%
We get lousy classes at home school--you don't get to take what you want.	----	20%	----	6%
You're away from your friends.	8%	6%	18.5%	12%
People look down on you.	2.3%	8%	2%	6%
The school is too cold.	----	----	8.2%	----
Having to take Phys Ed on your own time and money.	----	----	7.2%	----
What would you change at the SUN AVTS?				
Nothing.	65%	61%	52.5%	52%
Give us more freedom.	15%	----	----	2.3%
More chances to participate in activities.	1.2%	10%	2%	10%
Make classrooms warmer.	2.3%	1.2%	14.4%	3.5%
The grading system (absentee policy).	1.2%	2.3%	6%	2.3%
The gym class setup.	----	----	5%	----
Keep the two-week-about program.	----	3.5%	----	6%

	Twelfth-Year	Three-Year	Twelfth-Year	Three-Year
What would you change about your home school?				
Nothing.	53%	32.5%	45%	48%
I'd change the attitudes of teachers and kids at the home school toward tech.	9%	24%	10%	12%
Have more and better choice of courses for vo-tech students.	----	14%	----	8%
Let AVTS students know about and be involved in activities.	5%	4.7%	3%	3.5%
Unspecified ("Everything.")	6%	----	12%	14%
Twelfth-year group only: Why didn't you enroll in 10th grade?				
I couldn't get the shop I wanted.	16%		8%	
I wasn't interested.	11.6%		13%	
I did come and went back to home school.	5.7%		6%	
I didn't know what I wanted to do then.	8%		18.5%	
None of my friends came.	8%		----	
Did you ever seriously consider dropping out of school?				
Yes	20%	13%	13%	19%
No	79%	87%	85%	80%
Unsure	1%	----	1%	----
Are you in your first choice of shop?				
Yes, first	94%	82.5%	96%	73%
Second	6%	10.5%	4%	15%
Third	----	5%	----	7%
Fourth	----	1.2%	----	4%
No choice (only slot left)	----	1.2%	----	----
Are you happy with your choice of shop?				
Yes	85%	73%	94%	83%
Would like to switch to another.	15%	25%	2%	15%
Would like to withdraw from SUN.	----	1.2%	----	----
Unsure			4%	2%
Are you involved in home school activities?				
Yes	17.4%	37%	25%	35%

	Twelfth-Year	Three-Year	Twelfth-Year	Three-Year
Are you involved in activities at SUN?				
Yes	61.3%	59.5%	53%	42%
What are your plans for after graduation?				
Go to work in my trade.	58%	55%	49%	43%
Possibly continue my education.	20%	15%	13%	15%
Enter military service.	4.7%	8%	7%	2%
Get a job in any field.	8%	9%	3%	8%
Marriage (no job plans).	3%	3%	2%	2%
Unsure	7%	10.5%	19%	28%
Other	----	----	6%	1%

Results of the open-ended surveys show a relative consistency from Year One (1978-79) to Year Two (1979-80). There was a greater variety in responses during Year Two, however.

A rising percentage of students emphasized "getting a job" as both the reason they had enrolled and the greatest advantage to attending the AVTS. This could be attributed to increasing student awareness of the current economic decline and the difficulty a high school graduate faces in seeking employment. Slightly fewer students mentioned "getting away from home school" as their main reason for enrolling at the AVTS.

Less than half of all 1979-80 SUN AVTS students felt that there were no disadvantages to attending the AVTS, a decline from 1978-79. There was a notable decrease in the number of three-year student complaints about poor home school courses. More three-year students emphasized exclusion from home school as a disadvantage. This is probably due to the fact that alternating students are more aware of the day-to-day activities at their home schools.

Twelfth-year students cited separation from home school friends as the greatest disadvantage to attending the AVTS. This is an indication that the pressure to remain at home school is much greater for a senior than for a tenth grader. Approximately five percent more three-year students mentioned the disparaging attitudes of people at home school as a problem, while very few twelfth-year students (two percent) appear to be affected by that problem.

Two new difficulties were listed by 1979-80 twelfth-year students. The first concerns the temperature inside the school during the winter, when the heat is turned down to comply with the President's energy directives. The second problem relates to the senior year physical education requirement. During the 1978-79 school year, the twelfth grade physical education requirement was waived for twelfth-year students. It was reinstated for 1979-80 twelfth-year students, who were required to participate in a contracted program on their own time or during time designated by the home school. This arrangement has proved both unpractical and unpopular with most AVTS students and home school personnel.

Suggested changes at the AVTS reflect the disadvantages already mentioned. Curiously, though a relatively large percentage of 1978-79 twelfth-year students (15 percent) wanted more freedom at the AVTS, none of the 1979-80 twelfth-year students listed "more freedom" as a desired change.

Suggested changes at the home school remained fairly consistent, although the use of a written questionnaire format in 1979-80 enabled a relatively large percentage of students to be less specific ("Everything").

There was a reduction in the percentage of 1979-80 twelfth-year students who had considered dropping out of school. This indicates that for this particular twelfth-year group, postponement of the AVTS option from tenth to twelfth grade did not overly frustrate or discourage them from remaining in school.

Most twelfth-year students received their first choice of shop and were satisfied with that choice. Enrollment in the twelfth-year program appears to reduce participation in home school activities, although one-fourth of the 1979-80 twelfth-year students were involved in some home school activities.

The majority of twelfth-year and three-year students planned to seek work in their field of study. There was a slight increase in the percentage of twelfth-year students intending to enter a branch of the military and an increase in the percentage of all students who were unsure about their plans at the time the survey was administered.

Conclusions

No major differences in social adjustment and vocational maturity were found between the twelfth-year and three-year samples. Posttest scores revealed that three-year students' knowledge about different occupations was slightly better than that of twelfth-year students, though this difference was judged to be relatively unimportant. Twelfth-year students showed slightly greater degrees of self-reliance, self-sufficiency and self-discipline as measured by the 16PF. No differences in stress levels were observed.

The interview-administered Satisfaction Index and its written counterpart showed that both twelfth-year and three-year students have very positive attitudes and high opinions of the AVTS. Although a statistically significant difference was detected between twelfth-year and three-year index scores, the importance of this difference should not be exaggerated, given the highly positive range of all scores.

Student responses on open-ended questions revealed a few differences between twelfth-year and three-year students: a larger percentage of twelfth-year students had received their first choice of shop; enrollment in the twelfth-year program reduces participation in home school activities; a large percentage of twelfth-year students view separation from friends as a disadvantage to attending the AVTS; some twelfth-year students feel that their present physical education arrangement is unsatisfactory.

It can be concluded that no major differences in attitudes and social adjustment exist between twelfth-year students and their three-year counterparts. Surveys revealed that there are certain problems indigenous to the twelfth-year program (contracted physical education; peer pressure from friends to remain at home school), just as there are problems indigenous to the three-year, two-week-about system (home school scheduling; social difficulties; lack of continuity). These problems can and should be addressed by the AVTS and home schools.

Section Three

IS THE ATTENDANCE OF TWELFTH-YEAR STUDENTS BETTER THAN THAT OF STUDENTS NOT ENROLLED IN THE PROGRAM?

Vocational school attendance was examined during both years of the evaluation project to determine whether twelfth-year program attendance was (as had been hypothesized in the program proposal) better than that of vocational students not enrolled in the program. Since the instructional time has been reduced for the twelfth-year program, attendance can be considered an even more important factor than it might be in a three-year program. It should also be noted that the attendance of high school seniors as a whole might be expected to be poorer since most seniors have passed the state's mandatory attendance age.

Attendance data was collected to answer the following questions:

1. Is the senior year attendance of twelfth-year students better than the senior year attendance of alternating students at the SUN AVTS?

2. Is the senior year attendance of twelfth-year students at the SUN AVTS better than that of senior students enrolled at other area vocational-technical schools?

3. Do twelfth-year students lose a greater proportion of their vocational training time to absenteeism?

Sample

During Year One (1978-79), the comparison sample of twelfth-year and three-year SUN AVTS students was the same matched sample used for the achievement and attitudinal testing. This group was comprised of 83 twelfth-year and 61 three-year seniors.

During Year Two (1979-80), two separate studies were done. The first utilized a sample consisting of twelfth-year seniors (N=91) and a group made up of the three-year seniors still completing their training as alternating students (N=112).

The second study compared the attendance of twelfth-year seniors (N=91) with that of a comparison sample of vocational students drawn from nearby area vocational-technical schools (N=61). This sample group was also used in the achievement testing project.

Method

An absence rate was calculated for each student by dividing the number of days each subject was absent by the number of days that he or she had belonged at the AVTS. This absence rate is equal to the percentage of days that each student had missed. A t-test was performed on the sample mean rates to determine if a statistically significant difference was present.

Results

No significant difference between the senior year attendance of twelfth-year and three-year students was found (Table 3.1). It can be concluded, therefore, that the twelfth-year students' overall pattern of attendance is not attributable to the twelfth-year program, since the attendance of three-year seniors was no different. There is no evidence that enrollment in the twelfth-year program influenced the attendance habits of twelfth-year SUN AVTS students.

Twelfth-year attendance, a source of some administrative concern during the program's first year, showed improvement during 1979-80.

TABLE 3.1
SUN AVTS Senior Year Attendance Comparison: 1978-79

Group	N	Senior Year Rate of Absence	t Value	Significance
SUN AVTS Twelfth-year	83	7.392	.434	n.s.
SUN AVTS Three-year	61	6.993		

1979-80

Group	N	Senior Year Rate of Absence	t Value	Significance
SUN AVTS Twelfth-year	91	6.523	.0031	n.s.
SUN AVTS Three-year	112	6.520		

A comparison of the senior year attendance of SUN AVTS twelfth-year seniors with a sample of senior vocational students from neighboring area vocational-technical schools revealed no major differences (Table 3.2). The attendance of SUN AVTS students was slightly better than that of the comparison group: SUN AVTS seniors missed 6.5 percent of their senior year due to absenteeism, while the comparison group missed approximately 8.2 percent. This difference approaches significance; it can be termed marginally nonsignificant. Whether the difference is attributable solely to patterns of instruction is doubtful; attendance is affected by a number of factors, including instructional pattern, shop, teacher, and the individual school's attendance policies. However, the attendance of SUN AVTS twelfth-year students in 1979-80 was somewhat better than that of seniors at other vocational schools.

TABLE 3.2
A Comparison of Senior Year Attendance:
SUN AVTS vs Regional Comparison Group

Group	N	Senior Year Rate of Absence	t Value	Significance
SUN AVTS Twelfth-year	91	6.523	1.87	Marginally Nonsignificant
AVTS Sample	61	8.193		

To determine whether any other attendance differences existed, a comparison of the total amount of vocational training time lost due to absenteeism was made. Three-year students at the SUN AVTS belonged at the vocational school for a total of 270 days over a three-year period. Twelfth-year students belonged at the AVTS for 180 days. As before, a rate of absence was calculated for each student by dividing the number of days absent by the total number of days belonged, which resulted in the percentage of vocational training that each student had missed.

TABLE 3.3
Vocational Training Time Loss: 1978-79

Group	N	Total Rate of Absence	t Value	Significance
SUN AVTS Twelfth-year	83	7.392	2.6119	.01
SUN AVTS Three-year	61	5.157		

1979-80

Group	N	Total Rate of Absence	t Value	Significance
SUN AVTS Twelfth-year	91	6.523	.868	n.s.
SUN AVTS Three-year	110	5.937		

Table 3.3 summarizes the results of t-tests performed on the program absence rates of the two groups. During 1978-79, twelfth-year students were found to have missed 7.392 percent of their vocational training, while three-year students had missed 5.25 percent. This translates into a loss of 13.5 days out of 180 for twelfth-year students and 14.2 out of 270 for three-year students. The difference in rates was significant at the .01 level, indicating that during the first year of the program, twelfth-year students missed a significantly larger percentage of their training.

In 1979-80, twelfth-year attendance improved slightly. The twelfth-year absence rate was 6.52 percent (11.7 days) vs 5.937 percent (16 days) for three-year students. The difference in rates was not significant, indicating that in the second year of the study, twelfth-year students did not miss a significantly larger percentage of their vocational training than did three-year students.

Conclusions

During both years of the study, the senior year attendance of twelfth-year students at the SUN AVTS was no different than that of alternating, three-year students at the school.

The attendance of twelfth-year seniors was better than that of a sample of seniors from other area vocational-technical schools in the same region of the state; however, this difference was not statistically significant.

During the first year of the program, twelfth-year students did miss a significantly larger percentage of their vocational training time to absenteeism. However, in the program's second year, twelfth-year attendance improved to the point that the difference in vocational training time loss between twelfth-year and three-year students was not significant.

Attendance is a crucial factor in the success or failure of a vocational student. The SUN AVTS has demonstrated that with some effort, student attendance can be improved. Continued emphasis on good attendance is recommended.

Section Four

WAS THE NUMBER OF AVTS WITHDRAWALS AFFECTED BY IMPLEMENTATION OF THE NEW PROGRAM?

Twelfth-year withdrawals from the SUN AVTS were closely monitored during both years of this study. In 1978-79, twelfth-year and three-year withdrawals were examined and compared. Table 4.1 shows the withdrawal rates for both groups. The figures indicate that a large number of twelfth-year students dropped out of the program before they had experienced it: approximately 20 percent of the original enrollment. Once the school year was well under way, very few twelfth-year students withdrew. More than half of the three-year students who left the AVTS also dropped out of their home schools, while only one twelfth-year student did so.

Other than the large twelfth-year "Returned to Home School/No-Show" category, few real differences between the withdrawal patterns of twelfth-year and three-year students can be seen.

TABLE 4.1
SUN AVTS 1978-79 Twelfth-year and Three-year Withdrawals

Reason for Withdrawal	Twelfth-year	Three-year
Returned to Home School/No-show	20%	4%
Quit School	1%	4%
Maternity	2%	.6%
Moved	2%	.4%
Other	1%	1%
Total	26%	10%

Withdrawal statistics from neighboring area vocational-technical schools were collected to compare the twelfth-year program withdrawal rate with rates from other programs--half-day-about, nine-week-about, etc.

Table 4.2 shows the withdrawal rates (per 100 enrolled students) for the two years of the twelfth-year program's operation (1978-79 and

1979-80) and, for comparison, the pooled withdrawal statistics from other area vocational-technical schools for two consecutive years (1977-78 and 1978-79).

TABLE 4.2

Reason for Withdrawal	SUN AVTS 1978-79	SUN AVTS 1979-80	Comparison AVTS's 1977-78	Comparison AVTS's 1978-79
Transferred to Home School (includes no-shows)	20.5%	26.4%	.6%	.7%
Quit School	.9%	.8%	1.8%	2.4%
Moved and Other	4.4%	.8%	.6%	1.2%
Total Drops	26%	28%	3%	4.3%

Table 4.2 is deliberately misleading; it shows that the SUN AVTS has had an unusually large number of transfers to home school and no-shows. Almost all these drops took place before the start of school and during the early part of September. Because all drops were of interest to this study, the early withdrawals from the SUN AVTS were carefully monitored. Unfortunately, most of the comparison schools did not keep precise records of early drops. Recording of withdrawals was not usually begun until late September and early October of each year, after the enrollment had stabilized, so that early drops at the comparison schools do not appear in Table 4.2.

Once the abnormally large percentage of SUN AVTS early drops is subtracted (Table 4.3), no differences between the withdrawal rates of the SUN AVTS and the comparison schools can be seen.

TABLE 4.3
Withdrawals After Enrollment Stabilization

	SUN AVTS 1978-79	SUN AVTS 1979-80	Comparison AVTS's 1977-78	Comparison AVTS's 1978-79
Withdrawal Rate	3%	4%	3%	4%

Because the no-show and early withdrawal rate for the twelfth-year program appeared extremely high, records at the comparison schools were searched for data on early drops. Only one of the comparison vocational-technical schools was found to have kept detailed records of the withdrawal of new students during the late summer months and into September. Table 4.4 is a comparison of the early drops at the SUN AVTS with an AVTS which enrolls new students as tenth graders: figures denote the percentage of expected new fall entries who withdrew before or immediately upon the start of the school year.

TABLE 4.4
Early Withdrawal Comparison

Reason for Withdrawal	SUN AVTS 1978-79	SUN AVTS 1979-80	Comparison AVTS 1979-80
Returned to Home School and no-shows	18.7%	16.8%	7.3%
Quit School	.9%	4.8%	1.3%
Failed at Home School	----	.8%	.3%
Moved	1.8%	1.6%	----
Other	1.8%	----	----
Total Early Drops	23.2%	24%	9%

The figures in Table 4.4 indicate that the comparison AVTS's early drop rate was approximately 15 percent less than that of the SUN AVTS twelfth-year program. Staff members at the comparison school who assisted with the data collection indicated that when estimating numbers of new entries, they ordinarily expect a loss of about 10 percent of the original enrollment.

From these figures, it appears that eleventh graders find making the decision to leave home school an extremely difficult one: of the eleventh graders who plan to enter the SUN AVTS each spring, approximately 17 percent will change their minds. Most will elect to remain at their home school.

Conclusions

Because adequate enrollment is so important to the success of the twelfth-year program, a concerted effort must be made to assist eleventh graders in making the transition from home school to the vocational school. Interviews with twelfth-year seniors showed that "missing your friends at home school" was a common complaint: peer pressure to remain with friends is apparently quite intense at that grade level.

All other figures indicate that apart from the early drop and no-show problem, which must be addressed in order to maintain a high enrollment, no discernable differences exist between the twelfth-year withdrawal rate and those of other area vocational-technical schools, once enrollment at the schools has stabilized (October to June).

Section Five

WAS THERE ANY CHANGE IN THE SATISFACTION OF LOCAL EMPLOYERS WITH GRADUATES OF THE NEW PROGRAM?

Placement

To measure employer satisfaction with graduates of the twelfth-year program, it was first necessary to conduct a placement and follow-up study on the twelfth-year completers. Approximately 92 twelfth-year students graduated in 1979, and 94 graduated in 1980.

A mailed follow-up was done on those 1979 twelfth-year and three-year graduates who had participated in the Year One testing study. SUN AVTS year-end placement reports provided information on the 1980 twelfth-year graduates.

Method

A 3" x 5" postage-paid follow-up postcard was mailed to each of the 1979 twelfth-year graduates (N = 92), and the three-year graduates who had been included in the Year One study (N = 61). Two additional mailings were sent to nonrespondents; however, the final reponse rates achieved were not high: 55 percent for twelfth-year graduates and 46 percent for their three-year counterparts.

Results: 1979 Graduates

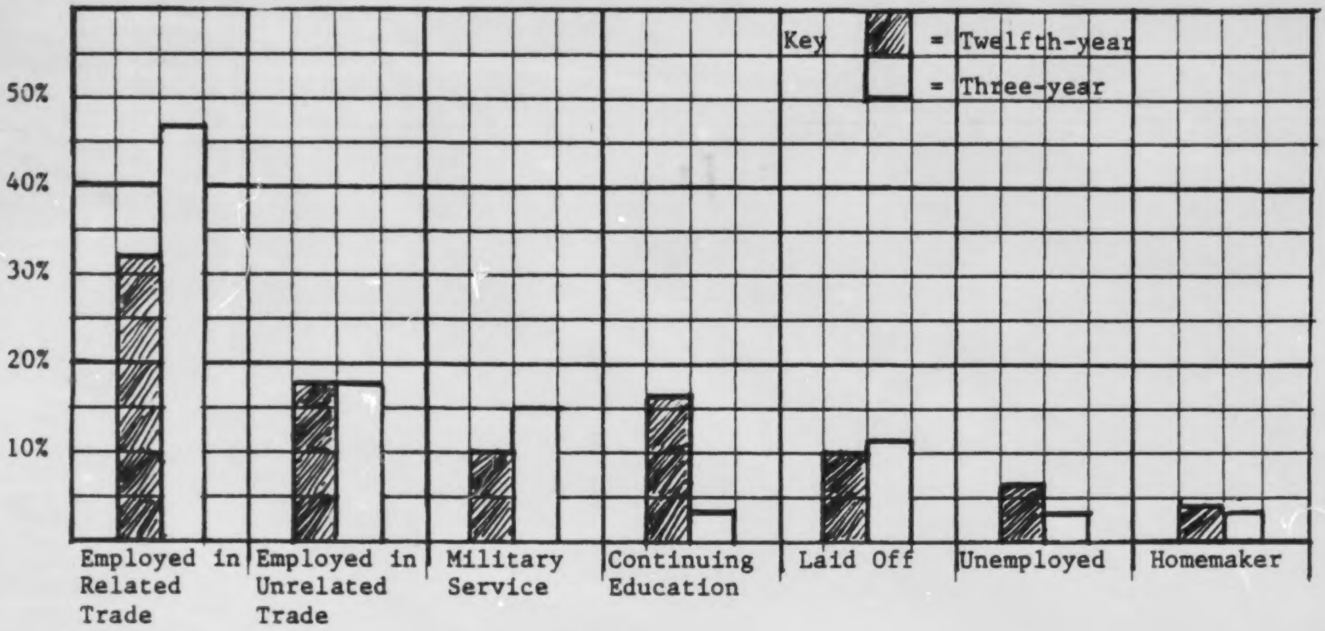
Table 5.1 shows the placement outcomes for 1979 graduates as of April-May 1980, approximately one year after graduation.

TABLE 5.1

	Employed in a Related Trade	Employed in an Unrelated Trade	Joined Military	Continuing Education	Laid Off	Unemployed	Homemaker
Twelfth-year N=50	36%	18%	10%	16%	10%	6%	4%
Three-year N=28	46%	18%	14%	3.5%	11%	3.5%	3.5%

Figure 5.1 is a graphic depiction of the comparative outcomes of 1979 twelfth-year and three-year graduates who responded to the follow-up.

FIGURE 5.1



On the follow-up card, respondents were requested to indicate their degree of satisfaction with their current job or area of study. They were also asked to indicate whether their vocational training at the SUN AVTS had been worthwhile to them. The responses of twelfth-year and three-year students to the satisfaction questions are shown in Table 5.2.

TABLE 5.2
a) Satisfaction with Current Job/Field of Study

	Very Satisfied	Satisfied	Unsure	Dissatisfied	Very Dissatisfied
Twelfth-year	35%	48%	6%	6%	3%
Three-year	33%	50%	----	11%	5.5%

b) Was SUN AVTS Vocational Training Worthwhile?

	Yes	No	Unsure
Twelfth-year	90%	2%	8%
Three-year	86%	7%	7%

Comments from Twelfth-year Students

"The training I had at SUN was very organized. The training helped me at my job."

"There does not seem to be many job opportunities in the training I took at SUN AVTS, in this area."

"I am going into the Marines and am going to use my welding experience which I learned at Vo-tech."

"SUN AVTS has inspired me to advance into further activities in the cosmetology field."

"I really enjoyed attending SUN AVTS and feel it has helped me with my continuation of schooling very much,"

"Many of my art friends at college admire and envy my experienced background in art."

"It worked out very good for me."

"I think the program was worthwhile and hope you keep the program. Thank you."

"I feel the three-year program is good. It gives more constant training and you learn to deal with the work everyday."

"There is no chance for a good job in this area in graphic arts. Minimum wage is the only pay available with no raises and little benefits."

"I really liked Vo-tech and I would like to get a job in my trade. I have been looking for a job in my trade but I have had no response yet."

"Training not extensive enough."

"I had a job related to my trade at SUN but due to the economy, I got laid off. SUN offers a real good program."

Comments from Three-year Students

"The training was good but in this area there are not very many jobs dealing with it."

"I love my job but I got more out of my employer than I ever got out of my instructor at SUN AVTS."

"I hope that in the future I will be able to get a welding job."

"I think SUN Area is the greatest."

"SUN AVTS is a very good school and every kid should get a chance to attend."

"Vo-tech is a great opportunity for any student who really wants to go someplace in life."

"I preferred my training in the three-year program like I got it rather than one full-year at SUN AVTS."

"My training was very helpful in my trade. Thank you."

"Couldn't find a job in field studied because of lack of qualifications (not enough exposure to diesel mechanics and truck mechanics in the classroom)."

1979-80 Graduates

Placement information on the class of '80 was gathered from SUN AVTS reports. A total of 94 first-time twelfth-year students completed the year. Table 5.3 is a breakdown of what became of those students shortly after graduation (June, 1980):

TABLE 5.3
1980 Graduate Outcomes

	Employed in a Related Trade	Employed in an Unrelated Trade	Military Service	Continuing Education	Seeking Employment	Not Seeking Employment	Not Recommended by AVTS
1980 Twelfth-year graduates	22%	10%	14%	16%	20%	12%	6%

Placement efforts for twelfth-year students are to take place mainly during the summer after graduation. Therefore, the available job placement statistics for the class of '80 can be expected to change significantly by the fall of 1980: specifically, the percentage of those now seeking employment will be largely redistributed into other categories in the coming months.

Discussion

The most obvious trend in placement of twelfth-year graduates as compared to that of three-year graduates is the increase in the number of twelfth-year students who continue their schooling. The majority of all twelfth-year students who enrolled in a postsecondary program--87 percent--are studying a field closely related to that which they studied at the AVTS. Over half (56 percent) of the twelfth-year graduates who are continuing their schooling are enrolled at the Williamsport Area Community College, Williamsport, Pennsylvania. The remainder are enrolled at cosmetology schools, technical and art institutes. One student entered a four-year state college, and one is planning to attend the

Johnstown School for the Handicapped. Students who elected to continue their education were enrolled in Agricultural Mechanics, Cosmetology, Commercial Art, Dental Assisting, Data Processing, Diesel Mechanics, Drafting, Electronics, and Environmental Control at the SUN AVTS.

The increase in students entering postsecondary programs may account for the discrepancy between twelfth-year and three-year placement in the "Employed-related" category. Combining employment, military enlistment and enrollment in postsecondary education into an overall placement category, the following figures can be derived:

1979 Graduates: Twelfth-year - Total Employed: 54% Total Placed: 80%
Three-year - Total Employed: 66% Total Placed: 85%

1980 Graduates: Twelfth-year - Total Employed: 32% Total Placed: 62%

Conclusions

The only notable difference between twelfth-year and three-year placement lies in the number of students who continue in postsecondary programs after graduating from the SUN AVTS. The percentage of twelfth-year students continuing their education has remained fairly constant from 1979 to 1980: 16 percent. This trend was predicted in the twelfth-year program proposal: it can be concluded that the twelfth-year program is attracting a larger number of college-bound students who want to learn a trade in addition to or as a supplement to their postsecondary education.

Overall placement percentages combining employment, enlistment, and school figures show little dissimilarity between twelfth-year and three-year graduates. If the response rate of the two groups had been somewhat higher, the placement percentages might have been significantly different. However, one must conclude from the available data that after a year, the outcomes for 1979 twelfth-year and three-year graduates are no different.

The attitudes of all 1979 graduates toward their SUN AVTS training were overwhelmingly positive. In addition, no differences can be seen in the satisfaction of graduates with their current position or field of study--83 percent of both groups indicated that they were satisfied or very satisfied with their job or program of study.

Employer Satisfaction

Employer satisfaction with graduates of the twelfth-year program was examined during both years of the study. Because sampling and data collection methods differed widely from Year One to Year Two, the two employer satisfaction studies will be discussed separately.

Year One: Sample

The 1978-79 sample consisted of all employed twelfth-year students and a comparison group of all three-year students who had been placed on cooperative education jobs by the end of the school year. Twenty-three (23) twelfth-year students were placed during the year; only 18, however, had been working long enough to receive ratings from their employers. Twenty (20) three-year students were placed during the school year, and eighteen (18) of these were on the job long enough to be rated by their employers.

Instrumentation and Results

Employers of the AVTS co-op students were requested, as part of the school's evaluation system, to rate their student trainees on a five-point scale in five categories: attitude, achievement, responsibility, safety practices and appearance. Ratings of twelfth-year students were compared with those of three-year students.

Employer ratings were available for eighteen (18) students in each group; the remaining co-op students had not been working long enough to have received a rating. Since students were rated during every two-week period that they worked, a mean score for each category was calculated to give each student one rating sheet for the entire year. In most cases, this step was unnecessary, since the employers tended to deviate very little in their assessment from period to period.

For comparison purposes, a rating of "excellent" was assigned a numerical value of four (4), "above average" three (3), "average" two (2), "below average" one (1), and "unsatisfactory" zero (0). A t-test was performed on the scores in each category. No significant differences were found. Group means and significance levels are shown in Table 5.4.

TABLE 5.4
Group Means and t-Test Significance Levels

	Attitude	Responsibility	Achievement	Appearance	Safety
Twelfth-year N=18	3.402	2.036	3.046	2.986	2.986
Three-year N=18	3.236	3.031	2.861	3.052	3.175
Significance	none	none	none	none	none

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Employer Satisfaction: Year Two

Both the data collection method and the instrumentation were changed for the Year Two employer satisfaction study. The design, however, remained basically the same as that of the Year One study: a one-shot comparison of employer ratings of twelfth-year and three-year SUN AVTS graduates.

Sample

The sample consisted of all twelfth-year and three-year students who had been included in the testing and attendance-monitoring studies and who had been placed on a job which fell into the "Employed in a Related Trade" category.

Instrumentation

The instrument selected for the comparison was the Minnesota Satisfactoriness Scales (Weiss, Dawis, England and Lofquist, 1970). The Minnesota Satisfactoriness Scales (MSS) were developed to measure a worker's satisfactoriness to his/her employer or immediate supervisor. It consists of a 28-item questionnaire requiring a checked response on a three-point scale. Because of its simplicity and brevity, the MSS is easily administered to employers and supervisors by mail.

Five scores can be derived from a completed MSS. The first is an overall General Satisfactoriness score. Four sets of items included within the MSS provide scores on Performance (quality and quantity of work), Conformance (observation of company rules, relations with supervisors and co-workers), Dependability (work habits, need for discipline), and Personal Adjustment (the worker's personal behavior). (Gibson, Weiss, Dawis, Lofquist, 1970.) Percentile norms based on five different occupational groups (Professional, Technical and Managerial; Clerical and Sales; Service; Machine Trades and Benchwork; Workers-in-General) are provided.

Method

Addresses of the graduates' places of employment were obtained and copies of the MSS mailed with an explanatory cover letter to the employer. Stamped return envelopes were enclosed. Questionnaires were coded to distinguish twelfth-year from three-year graduates; employers were given the option of erasing the subject's name from the questionnaire for confidentiality purposes. In all, 41 questionnaires were mailed; the response rate was 53 percent. The returned MSS's were hand scored and the raw scores converted using the Workers-in-General norm table. Means were calculated for General Satisfactoriness, Performance, Conformance, Dependability and Personal Adjustment.

Results

MSS percentile scores were compared using a t-test. Table 5.5 shows the means, standard deviations and significance levels for the

General score and the four sub-categories. Although twelfth-year means were somewhat lower than three-year means, no significant differences were found in any category.

TABLE 5.5

		Mean	S.D.	t-Value	Significance
General Satisfactoriness	Twelfth-year N=8	33.37	25.88	1.086	n.s.
	Three-year N=14	45.22	23.86		
Performance	Twelfth-year N=8	28.5	17.38	1.578	n.s.
	Three-year N=14	43.22	22.75		
Conformance	Twelfth-year N=8	39.5	31.15	.5297	n.s.
	Three-year N=14	46.28	27.6		
Dependability	Twelfth-year N=8	51.75	25.35	.6171	n.s.
	Three-year N=14	59.78	31.33		
Personal Adjustment	Twelfth-year N=8	45.87	31.8	.4237	n.s.
	Three-year N=14	51	24.51		

If the response rate, and therefore the number of subjects, had been higher, some of the differences between twelfth-year and three-year means might have been significant. Further follow-up and monitoring of employer satisfaction should be done when more twelfth-year students are placed and have been working at their jobs a sufficient amount of time.

Few supervisors included any supplementary comments with the MSS; however, one employer declined to fill out the MSS and returned it, writing: "When they had had the three-year period, I was able to put (students) to work for a least half of their junior year and all of their senior year. As the system is now, it is very hard to get students into work for even half of a year, because there is no way they can be trained for factory work in that short a time."

Conclusions

Employer ratings for twelfth-year students were no different than those for three-year students in both the Year One and Year Two studies. Because the MSS (Year Two) study showed that twelfth-year means were lower than three-year means (though not significantly lower), further examination of employer satisfaction, using a larger sample, is in order.

Summary

Follow-up studies showed that the most notable difference between twelfth-year and three-year placement was in the increased number of twelfth-year students continuing their education beyond high school. Considering placement as employment, military enlistment and postsecondary enrollment, no real differences are to be seen between the two groups. Comments from graduates seemed uniformly distributed, favorable and unfavorable, between twelfth-year and three-year respondents. The most commonly received complaint concerned the difficulty of obtaining a position in graphic arts. In all, student attitudes toward their AVTS schooling were quite positive.

Employers rated their twelfth-year workers no differently than their three-year employees. Results of the Minnesota Satisfactoriness Scales study, however, indicate that further examination of employer satisfaction is necessary, given the small sample size and the consistently, though not statistically significantly lower scores of twelfth-year employees.

Of the employers themselves, only one provided any negative feedback regarding the twelfth-year program: the complaint--that few students could be placed on co-op during the school year--was recognized by the AVTS when the twelfth-year program was proposed. Student placement will take place mainly at the end of the school year and during the summer after graduation.

HAS THE SUN AVTS BEEN ABLE TO ACCOMODATE 66 PERCENT MORE STUDENTS PER CLASS?

The proposal outlining the format, implementation and justification of the twelfth-year program states that the SUN AVTS will be able to accommodate 66 percent more students per class under the new program. Use of this figure can be somewhat misleading; realistically, the AVTS should be able to increase its enrollment per class by about 50 percent.

Capacity of the SUN AVTS is approximately 450 students at any one time. With its alternating schedule, the AVTS was able to enroll a maximum of 900 half-time students per year. This 900-student figure can be broken down to 300 tenth-graders, 300 eleventh-graders, and 300 twelfth-graders; under the three-year program, therefore, the SUN AVTS was able to accommodate about 300 students per class.

With all of its student stations open to each class, the AVTS can accommodate and graduate 450 students per class, an increase of 150 students per class, or 50 percent more students.

There is no doubt that the shops are open and the spaces are available to students. The important issue is whether the AVTS can attract 450 students per class from the six sending high schools. There were roughly 1200 eleventh graders at the six sending schools in 1979-80. The AVTS would have to attract 37 percent, or just over one-third of the existing junior class, to be filled to capacity in 1980-81.

During the 1978-79 and 1979-80 school years, transitional years for the twelfth-year program (the three-year program was completely phased out by June 1980), the AVTS was able to attract about 90 new twelfth-year students from each class. It is important to note that the classes of '79 and '80 had been given the opportunity to enter the SUN AVTS in tenth grade, and most interested students did so at that time.

The class of 1981 is the first class which has not had the opportunity to enroll at the AVTS in tenth grade. 1980-81 enrollment, as of June 1980, is shown in Table 6.1. Five shops--Data, Carpentry, Auto Body, Auto Mechanics, and Cosmetology--are filled to or near to capacity. Incoming twelfth-year students appear less willing than tenth-graders to remain at the school if they are not placed in the shop of their first choice; this has placed pressure on the AVTS to keep shop offerings relevant to pupil needs. Shops with consistently low enrollment are being reexamined, with the result that one of the two drafting shops has been eliminated.

TABLE 6.1
Enrollment, SUN AVTS Class of 1981 (Tabulated June 1980)

		Home Schools:					
Shop	Total	Lew	Mid	Mif	Sel	Shk	W/S
Ag. Mechanics	21	1	5	2	5	6	2
Apparel Manufacturing	16	0	4	7	1	4	0
Architectural Drafting	10	0	2	3	0	0	5
Auto Body	23	0	5	4	5	7	2
Auto Mechanics	24	0	2	5	6	7	4
Carpentry	24	5	3	2	5	7	2
Commercial Art	18	0	2	7	0	5	4
Cosmetology	25	2	2	5	6	8	2
Data Processing	30	3	6	8	3	5	5
Dental Assisting	16	1	3	8	0	4	0
Diesel Mechanics	20	1	3	3	7	6	0
Electrical Occupations	20	1	0	5	6	6	2
Electronics	11	1	1	2	0	5	2
Environmental Control	8	0	0	0	1	7	0
Graphic Arts	8	0	2	0	2	3	1
Machine Shop	9	0	2	0	1	6	0
Masonry	20	3	3	3	1	6	4
Millwork and Cabinetmaking	17	0	2	6	4	5	0
Welding	17	1	1	5	2	8	0
Totals	337	19	48	75	56	104	35

By spring 1980, enrollment for the 1980-81 school year was 337, approximately 75 percent of capacity. Table 6.2 indicates that three of the high schools will be sending over one-third of their junior classes to the AVTS in the fall; the other three schools fell short of that percentage level.

TABLE 6.2
Percentage of Junior Classes Enrolled at SUN AVTS, 1980-81

	West Snyder	Mifflinburg	Middleburg	Shikellamy	Selinsgrove	Lewisburg
Percentage	43%	42%	39%	29%	22%	12%

Fluctuations in enrollment of new entries occur throughout the summer, as some students drop out of the program and others add; however, the most significant foreseeable enrollment problem will be the large number of no-shows and early withdrawals which can be expected in September (see AVTS Withdrawals, Section 4). Study of this phenomenon indicates that the total percentage loss may be as high as 23 to 25 percent. Such a drop would leave the AVTS enrollment at about 246 students, which is just over half of the school's capacity.

Operating at this enrollment level, the AVTS would be graduating approximately the same amount of students that it did under the three-year program. The cost per student, however, would be extremely high (see Costs, Section 7).

Since the AVTS has had only one year's experience with recruitment from a junior class that has had no other opportunity for AVTS enrollment, it is difficult to conclude whether the AVTS will or will not be able to operate at capacity. However, given the extremely high early withdrawal and no-show rate, it seems unlikely that optimum enrollments can be maintained.

Several suggestions for improving enrollment have been offered by AVTS and sending school staff members. These include an intensified recruitment and awareness program, starting at the junior high or middle school level and incorporating tours, pamphlets, film, videotape or slide shows, visitations or demonstrations by AVTS teachers, field trips to industry, and local tradespersons as speakers.

Other suggestions include dropping shops with low enrollments and adding offerings more relevant to student and community needs, and opening the school to postgraduates, adults, or home school students who cannot earn a diploma.

Section Seven

WERE THERE ANY ADDITIONAL COSTS CONNECTED WITH THE TWELFTH-YEAR PROGRAM?

The cost effectiveness of the twelfth-year program is of great interest to all those familiar with the new delivery system. It will be necessary to follow the program for at least two more years to reach a conclusion on cost effectiveness. However, in an examination of existing financial information, some trends already become apparent.

Data on membership and expenses were collected from the following school district reports: DEBE-482 (Annual Attendance Report); DECO-500 (Financial Report); SUN AVTS business office records, and Our Schools Today (Public School Financial Statistics Report, 1977-78, Vol, 18, #7).

It can be assumed that the new program will cost the sending districts less because of the reduction in vocational instruction time. The cost per pupil cost for a vocational-technical program is greater than that of the typical high school curriculum; therefore, the time transferred from a vocational to a high school program (one semester) will and has reduced the overall costs of instructing a vocational pupil in 1978-79 by $793.74. A similar reduction is anticipated in the current school year, 1979-80.

Table 7.1 illustrates the savings, per average daily membership (ADM), in the one-year program.

TABLE 7.1
Cost per ADM (DECO 500, Distribution of Charges to Participating Districts DEBE 482)

District	1977-78	1978-79
Shikellamy	$1,121.08	$1,246.11
Mifflinburg	1,207.33	1,429.18
Lewisburg	1,401.68	1,506.22
Midd-West	1,263.80	1,419.31
Selinsgrove	1,342.48	1,445.26
Average	$1,247.48	$1,386.36
SUN AVTS School Cost/ADM	$2,537.77	$2,973.84
Sending School District's Cost/ADM	$1,247.78	$1,386.36
Difference in Cost/ADM	$1,290.29	$1,587.48
Difference in Cost/ADM (1/2 time Student)	$ 645.14	$ 793.74

The same saving is illustrated in a comparison of the total cost of instructing a two-week-about vocational student for three years with the total cost of instructing a twelfth-year vocational student for the same three years.

TABLE 7.2
Comparison of Costs per Student

A. Cost per ADM Under Half-Time AVTS Program	
Sending School Costs (3 years, half-time) $693.18 (1/2 of $1386.36)x3	$2,079.54
AVTS Cost (3 years, half-time) $1486.92x3 (1/2 of $2973.84)	$4,460.76
	$6,540.30
B. Cost per ADM Under Twelfth-Year AVTS Program	
Sending School Cost 2 years at $1386.36	$2,772.72
AVTS Cost one year at $2973.84	$2,973.84
	$5,746.56
Savings ($6,540.30 minus $5,746.56)	$ 793.74

Regular Instructional Costs at the Sending Schools

Instructional costs at the sending schools did not increase with the addition of one semester at the high school for each vocational student and the retention of all tenth and eleventh graders at the home schools. It should be noted that the small separate "tech" sections necessitated by the two-week alternation are being eliminated. The available data were also affected by a decrease in enrollment at some local schools. This permitted vocational students to be placed in regular classes without adding teachers.

TABLE 7.3
Total Secondary Instructional Cost
(Source: DECO 500; lines: 0200, 0300, 0600, 0800, 0900, 1000, 1100)

District	1977-78	1978-79
Shikellamy	$2,519.293	$2,724,709
Mifflinburg	1,371,604	1,500,176
Lewisburg	1,524,711	1,613,709
Midd-West	1,714,503	1,901,535
Selinsgrove	1,975,198	2,202,732
Total	$9,105,309	$9,942,861

$ Increase 77-78 to 78-79	$837,522
% Increase 77-78 to 78-79	9.2
State Revenue percentage increase 77-78 to 78-79 (from Our Schools Today Vol. 18, No. 7--Highlights)	9.5

Is the use of the Pennsylvania state revenue increase as a comparison figure valid? Table 7.4 was developed to check this. The schools in this attendance area have traditionally had a greater percentage increase than the total state; however, in 1978-79, when one would expect the difference to be greater because of the retention of all tenth grade students at the home schools, it was less than the state average increase. This would appear to indicate that there has been no increase in instructional costs to the local school districts.

TABLE 7.4
Relationship Between Local Percentage Increase and State Revenue Percentage Increase

	1975-76 to 1976-77	1976-77 to 1977-78	1977-78 to 1978-79
Local School % Increase	8.0%	7.3%	9.2%
State Revenue % Increase	5.3%	6.3%	9.5%

Declining AVTS Enrollments: An Anticipated Development

Table 7.5 indicates that while the average daily membership at the SUN AVTS decreased approximately 13 percent from 1977-78 to 1978-79, the number of graduates increased 30 percent during the same time period.

The drop in the ADM might be partly attributable to transitional difficulties in enrollment. The 1980-81 class will be the first to enter wholly on a full-time schedule; in 1977-78, all students were alternating, three-year students.

TABLE 7.5
ADM: Equivalent Full-Time Students Attending SUN AVTS (DEBE 482)

	75-76	76-77	77-78	78-79	79-80 (9-22-79) (approx.)
Shikellamy	125.790	124.673	116.972	90.083	79
Mifflinburg	76.270	69.376	73.917	85.367	74
Lewisburg	37.020	34.378	30.928	18.288	18
Midd-West	93.590	93.520	88.022	79.970	51
Selinsgrove	63.960	65.265	72.717	59.427	40
Total (full-time equivalent)	396.630	387.203	382.556	333.135	262 (approx.)
Number Graduates		233	220	310	330 (approx.)
Number Pupils Actually Enrolled	793	774	766	574	337
SUN AVTS Total Costs	$779,823	$818,687	$970,838	$990,701	$990,000
Cost/ADM	$1,966	$2,114	$2,538	$2,974	$3,781
Cost/Graduate		$3,514	$4,413	$3,196	$3,000

The following "ideal" figures are an extrapolation based on a full-time program filled to 95 percent capacity. They are included to illustrate the costs of the twelfth-year program operating in optimum conditions.

TABLE 7.6
An Extrapolated Ideal: 1980-81

ADM	Number Graduates	Number Actually Enrolled	Cost/ADM	Cost/Graduate
420	420 (approx.)	430	$2,380	$2,380

Cost per ADM will be slightly reduced if the school is filled to near capacity. Since all students enrolled will be eligible to graduate, the cost per graduate is greatly reduced.

Conclusions

Operation of the twelfth-year program could reduce the overall cost of educating a student by approximately $800--but only if the school is enrolled to capacity or near capacity.

Instructional costs at the sending schools do not appear to have risen beyond the normal increase rate caused by inflation. Continued monitoring of home school costs is in order.

Because of the declining enrollment at the SUN AVTS, the cost per ADM at the AVTS has increased. However, since a larger number of students are eligible to graduate each year, the cost per graduate has decreased. If operational costs at the AVTS increase while enrollment declines, this may not continue to be true. Enrollment at the AVTS will be the determining factor if the program is to be cost effective.

Examination of SUN AVTS enrollment and operating costs should be continued for at least two more years.

HAS THE NEW PROGRAM AFFECTED THE WITHDRAWAL RATE AT THE SENDING SCHOOLS?

A concern expressed by many individuals familiar with the twelfth-year program was that "borderline" tenth and eleventh graders, deprived of the chance to attend the AVTS until twelfth grade, might become discouraged with school and drop out. Home school withdrawal records and attendance records were examined to determine whether this was, in fact, taking place.

"Dropouts" from the home schools would be classified in one of the following attendance code categories.

W-6: Quit school after passing required attendance age
W-7: Issued a General Employment Certificate
W-8: Issued a Farm or Domestic Service Exemption Permit
W-13: Drafted or enlisted in the armed service
W-16: Runaway

Records of home school guidance counselors were obtained and the number of W-6, 7, 8, 13, and 16 withdrawals in each grade was compiled. The Annual Attendance Report (DEBE-482) from each sending school provided enrollment figures. This data was collected for the school years 1975-76, 1976-77, 1977-78, 1978-79, and 1979-80.

Any increase in the withdrawal rates at the sending schools caused by implementation of the twelfth-year program would manifest itself in the statistics for 1978-79 and 1979-80. Since tenth and eleventh graders would be specifically affected by the change from a three-year to a twelfth-year program, tenth grade statistics were isolated to determine whether any increase had taken place.

Table 8.1 shows the withdrawal rate for tenth-grade students from all schools from 1975-76 to 1979-80.

TABLE 8.1
Tenth Grade Withdrawal Rates

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	6%	8.1%	9.7%	6.5%	6.7%
Mifflinburg	1.3%	1.8%	7.6%	4.4%	2.1%
Selinsgrove	2.1%	3%	2.8%	2.4%	4.4%
Midd-West	2.2%	3.6%	5.3%	3.1%	1.4%
Lewisburg	4.1%	3.5%	1.7%	2.7%	4.3%
Totals	3.5%	4.4%	5.6%	4.4%	4.1%

None of the individual schools has shown a drastic increase in the tenth grade withdrawal rate, nor has the total rate for all schools increased significantly. The highest tenth grade withdrawal rate was that for the 1977-78 school year; that class did have the opportunity to enroll at the AVTS as tenth graders.

Tables 8.2 and 8.3 show the tenth grade enrollments and withdrawals, respectively, from which Table 8.1 was derived.

TABLE 8.2
Tenth Grade Enrollment

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	296	294	268	396	386
Mifflinburg	145	162	145	181	186
Selinsgrove	187	234	211	290	271
Midd-West	176	164	168	224	270
Lewisburg	170	170	175	181	207
Totals	974	1024	967	1272	1320

TABLE 8.3
Tenth Grade Withdrawals

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	18	24	26	26	26
Mifflinburg	2	3	11	8	4
Selinsgrove	4	7	6	11	12
Midd-West	4	6	9	7	4
Lewisburg	7	6	3	5	9
Totals	35	46	55	57	55

Two studies of all home school dropouts in grades nine through twelve are included to demonstrate that the withdrawal rate in the sending school area, both including and excluding AVTS withdrawals, has not changed significantly in the past five years.

Table 8.4 shows the withdrawal rate for all students in grades nine through twelve, excluding AVTS students, for the years 1975-76 through 1979-80. The figures show that no individual school's rate has increased drastically, nor has the total rate changed significantly.

TABLE 8.4
Grades Nine through Twelve Withdrawal Rates (Excluding AVTS)

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	6.8%	6.4%	5.8%	6.6%	6.8%
Mifflinburg	1.9%	2.6%	3.9%	2.9%	2.5%
Selinsgrove	6.2%	5.9%	7.1%	7.0%	5.8%
Midd-West	5.1%	5.5%	5.4%	3.2%	2.9%
Lewisburg	2.7%	3.9%	2.6%	4.5%	2.9%
Totals	5%	5.2%	5.2%	5.2%	4.6%

Tables 8.5 and 8.6 show the enrollments and withdrawals, respectively, from which Table 8.4 was derived.

TABLE 8.5
Grades Nine through Twelve Enrollments (Excluding AVTS)

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	1292	1256	1243	1332	1390
Mifflinburg	611	633	630	605	672
Selinsgrove	854	913	891	855	1019
Midd-West	759	759	788	805	888
Lewisburg	719	714	704	733	706
Totals	4235	4275	4256	4330	4675

TABLE 8.6
Grades Nine through Twelve Withdrawals (Excluding AVTS)

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	89	81	73	88	95
Mifflinburg	12	17	25	18	17
Selinsgrove	53	54	63	60	60
Midd-West	39	42	43	26	26
Lewisburg	20	28	19	33	21
Totals	213	222	223	225	219

Table 8.7 shows the withdrawal rate for all students, including AVTS students, for 1975-76 through 1979-80. None of the sending schools' rates have increased significantly.

TABLE 8.7
Grades Nine through Twelve Withdrawal Rates (Including AVTS)

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	6.7%	6%	6.2%	6.4%	6.5%
Mifflinburg	2.1%	3.6%	3.7%	3%	2.8%
Selinsgrove	6%	6.3%	6.4%	5.9%	5.6%
Midd-West	4.5%	5.1%	5.3%	3.8%	3.1%
Lewisburg	2.8%	4.3%	2.8%	4.4%	2.8%
Totals	4.8%	5.3%	5.1%	5.1%	4.6%

Tables 8.8 and 8.9 show the enrollments and withdrawal figures from which Table 8.7 was derived.

TABLE 8.8
Grades Nine through Twelve Enrollments (Including AVTS)

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	1549	1517	1492	1493	1486
Mifflinburg	768	777	783	686	748
Selinsgrove	992	1054	1040	1096	1070
Midd-West	900	946	904	920	939
Lewisburg	796	788	748	766	728
Totals	5005	5082	4967	4961	4971

TABLE 8.9
Grades Nine through Twelve Withdrawals (Including AVTS)

	1975-76	1976-77	1977-78	1978-79	1979-80
Shikellamy	104	92	93	97	97
Mifflinburg	16	28	29	21	12
Selinsgrove	60	67	67	65	60
Midd-West	41	49	48	35	30
Lewisburg	23	34	21	34	21
Totals	244	270	258	252	229

Conclusions

The tenth grade withdrawal rate has not exhibited a significant increase. The five-year study demonstrates that rates at the individual schools fluctuated by as much as two to three percent from year to year. Rates for the years 1978-79 and 1979-80 show normal fluctuation; only Selinsgrove's rate increased by more than two percent from 1975-76 to 1979-80. The total tenth grade withdrawal rate has remained fairly consistent from 1975-76 to the present.

The grade nine through twelve withdrawal rates for the sending high schools, both including and excluding AVTS dropouts, have shown no increases. Monitoring of withdrawal rates, for the total high school population and for grades ten and eleven specifically, should continue for the next several years.

Section Nine

HAS THE NEW PROGRAM SIMPLIFIED SCHEDULING AT THE HOME SCHOOLS?

Interviews with principals and counselors during Year One of the study indicated that scheduling at the home schools would be simplified, since there would no longer be a need to create separate AVTS sections and schedule them on a two-weeks-of-academics, two-week-at-AVTS basis. Larger sending schools had been better able to integrate two-week-about students into regular classes with home school students, but the smaller sending schools had been forced into the "separate section" option.

Principals stated that they anticipated no staffing problems stemming from the loss of a large fraction of the senior class to the AVTS, and the retention of all tenth and eleventh graders at the home school. Since AVTS students would not be identified as such until the end of eleventh grade, all students would simply select their courses from the regular home school offerings.

Data was collected from home school secondary school reports to identify which courses of study the extra tenth and eleventh graders were entering, and to determine whether the change from a three-year to twelfth-year format was affecting course enrollments at the sending schools.

The only home school problem which has developed as a direct result of the twelfth-year program has been the creation of the contracted physical education program for twelfth-year AVTS students. Home school physical education teachers supplied information on their contract systems, which are discussed later in this section.

Home School Enrollment Trends

The tenth and eleventh grade schedule of each student slated to enter the AVTS in 1980-81 was examined in spring 1980, to identify the courses of study that future AVTS students had pursued. A summary of the findings are presented in Table 9.1.

TABLE 9.1
1980-81 AVTS Students: Courses of Study

	College Prep	Home Economics	Agri-Culture	Business Education	General	Special Education	Total
Shikellamy	15			6	74	8	103
Mifflinburg	11	7	12	25	15	3	73
Lewisburg	2			1	15	1	19
Middleburg	4		13	25	9		51
West Snyder	2	7	12	7	8		36
Selinsgrove	2	2	12	6	35		57
Totals	36	16	49	70	156	12	339
Percentages	11%	5%	14%	21%	46%	3%	100%

The data in Table 9.1 show that the largest percentage of 1980-81 AVTS students followed a General curriculum in tenth and eleventh grade. The second largest percentage were Business students, followed by Agriculture, College Preparatory, Home Economics and Special Education.

TABLE 9.2
Enrollment at the Sending Schools

	College Prep	Home Economics	Agri-Culture	Business Education	General	Special Education	Total
Shikellamy	133			85	122	19	359
Mifflinburg	62	17	21	45	24	6	175
Lewisburg	90	4		31	32	2	159
Middleburg	34	26	20	36	10	11	137
West Snyder	19	14	17	21	16		87
Selinsgrove	115	4	31	40	71	4	265
Totals	453	65	89	258	275	42	1,182
Percentages	38%	5.5%	7.5%	22%	23%	3.5%	99.5%

Table 9.2, Enrollment at the Sending Schools, shows how all home school students were distributed through the six courses of study. From the figures in Tables 9.1 and 9.2, the following percentages can be calculated:

8% of all College Prep students,
25% of all Home Economics Students,
55% of all Agriculture students,
27% of all Business students,
57% of all General students, and
28% of all Special Education students elected to enter the twelfth-year program at the AVTS.

A comparison of the percentage distribution in courses of study between total home school students and AVTS enrollees (Tables 9.1 and 9.2: percentages) shows that the distribution of future AVTS students in the various courses of study generally reflects the overall distribution of all home school students into the different curricula. Only the College Preparatory, Agriculture and General categories deviate from the pattern. Predictably, a smaller proportion of College Prep students selected the AVTS: equally predictably, a larger proportion of Agriculture and General studies pupils did so.

TABLE 9.3 ENROLLMENT BY SUBJECT: Grade Ten

Subject	Shikellamy 1977	Shikellamy 1979	Mifflinburg 1977	Mifflinburg 1979	Lewisburg 1977	Lewisburg 1979	Middleburg 1977	Middleburg 1979	West Snyder 1977	West Snyder 1979	Selinsgrove 1977	Selinsgrove 1979	Total 11 Grade 1977	Total 11 Grade 1979	Difference	Percent
Art	176	466	39	83	44	34	21	28	23	34	94	72	397	717	320	80.60
Typing	43	16	0	13	0	8	2	5	16	25	39	15	100	82	18	18.00
Driver Education	165	210	59	50	0	96	90	50	20	0	72	135	406	541	135	33.25
Foreign Language	70	110	24	14	46	73	15	11	8	10	39	50	202	268	66	32.67
Health	362	359	0	0	205	159	113	128	94	82	182	241	956	969	13	1.36
Vocational Home Economics	111	111	7	17	22	4	8	26	21	14	10	4	179	176	(3)	(1.68)
Home Economics	175	204	107	106	0	0	38	0	10	14	12	8	342	332	(10)	(2.92)
Industrial Arts	140	221	51	67	167	162	21	37	21	19	27	65	427	571	144	33.72
Mathematics	119	151	213	165	178	148	81	87	70	59	238	199	899	809	(90)	(10.01)
Vocational Agriculture	*	*	29	21	*	*	7	17	17	17	27	31	80	86	6	7.50
Business Education	35	29	53	45	24	31	45	76	11	21	30	40	198	242	44	22.22
Physical Education	384	359	218	183	177	159	115	129	100	82	266	268	1,260	1,180	(80)	(6.35)
Science	799	1,045	75	93	128	199	67	42	91	64	250	180	1,410	1,623	213	15.11
Social Studies	224	273	199	167	247	75	115	128	94	82	279	280	1,158	1,005	(153)	(13.21)
Speech	0	0	9	14	0	0	5	0	0	0	52	13	66	27	(39)	(59.09)
Special Education	11	19	4	6	1	2	2	1	3	0	2	4	23	32	9	39.13
English	384	359	203	173	213	159	113	128	94	82	264	268	1,271	1,169	(102)	(8.03)
Music	58	52	43	42	49	42	44	91	49	81	109	87	352	395	43	12.20
Enrollment	384	359	208	173	213	159	115	128	94	82	264	268	1,278	1,169	(109)	(8.53)

TABLE 9.4 ENROLLMENT BY SUBJECT: Grade Eleven

Subject	Shikellamy		Mifflinburg		Lewisburg		Middleburg		West Snyder		Selinsgrove		Total 10 Grade		Dif-ference	Percent
	1977	1979	1977	1979	1977	1979	1977	1979	1977	1979	1977	1979	1977	1979		
General Art	2	177	2	0	65	22	28	0	39	54	21	48	157	301	144	91.72
Typing	105	32	53	44	0	23	72	0	18	45	85	29	333	173	(160)	(48.05)
Driver Education	369	447	214	189	189	266	132	188	158	216	320	290	1,382	1,596	214	15.48
English	370	371	205	187	230	207	118	138	113	127	277	263	1,313	1,293	(20)	(1.52)
Foreign Language	106	123	64	62	106	103	25	32	15	6	95	130	411	456	45	10.95
Health	0	0	1	0	0	60	94	0	0	0	0	0	95	60	(35)	(36.84)
Home Economics	75	85	12	8	7	7	35	48	16	21	7	17	152	186	34	22.37
Industrial Arts	173	223	1	29	87	87	31	33	21	22	40	48	353	442	89	25.21
Mathematics	150	255	171	118	209	198	115	163	87	129	273	280	1,005	1,143	138	13.73
Vocational Agriculture	0	0	26	26	0	0	28	31	23	39	19	33	96	129	33	34.38
Business Education	20	16	42	63	0	0	84	76	16	25	0	0	162	180	18	11.11
Physical Education	370	371	221	195	198	207	118	138	113	127	217	252	1,237	1,290	53	4.28
Science	511	664	203	191	246	215	118	138	113	127	217	252	1,408	1,587	179	12.71
Social Studies	434	572	201	182	218	184	115	138	113	127	253	277	1,334	1,480	146	10.94
Speech	24	2	0	3	0	0	6	0	0	0	0	16	30	21	(9)	(30.00)
Special Education	11	14	(3)	5	3	0	5	3	5	0	11	9	38	31	(7)	(18.42)
Music	47	55	44	36	63	61	41	61	50	99	225	121	470	433	(37)	(7.87)
Enrollment	370	371	209	184	230	207	118	138	113	129	277	263	1,317	1,292	(25)	(1.90)

Tables 9.3 and 9.4 were compiled to compare tenth and eleventh grade subject enrollments in 1977, when the AVTS was operating on a three-year, two-week-about schedule, with subject enrollments in 1979, when the twelfth-year program was fully implemented.

The greatest enrollment changes have taken place in the following subjects:

Grade 10			Grade 11		
Art:	up	92%	Art:	up	81%
Typing:	down	48%	Typing:	up	18%
Health:	down	37%	Driver Ed:	up	33%
Home Economics:	up	22%	Foreign Languages:	up	33%
Industrial Arts:	up	25%	Business:	up	22%
Vocational Agriculture:	up	34%	Speech:	down	59%
Speech:	down	30%			

The increase in Home Economics, Industrial Arts and Vocational Agriculture enrollment among tenth graders is probably attributable to the retention of future AVTS students at the home schools in tenth and eleventh grade. Although Commercial Art is offered at the AVTS, the huge increase in tenth and eleventh grade Art course enrollment cannot be explained simple by the retention of a maximum of 24 potential Commercial Art students per class at the home schools. The increase is probably due to addition of new art electives at the sending schools. The reduction in tenth and eleventh grade speech enrollments is also difficult to relate to implementation of the twelfth-year program.

Health is now commonly offered in eighth or ninth grade and in eleventh grade at the home schools; thus, the 37 percent reduction on tenth grade Health enrollment is not surprising.

The fluctuation in typing enrollments is curious, since typing is recommended by the AVTS as a prerequisite to many shops. It is possible that AVTS-oriented tenth graders, given a choice between typing and other prevocational subjects such as Industrial Arts or Vocational Agriculture, chose the latter. Typing enrollments rose among eleventh graders.

Physical Education

Physical education teachers at the six sending schools provided materials on their twelfth-year contracted programs. Five of the six schools had experienced some problems with the contract arrangements.

At all six schools, the system involved a written contract requiring the signature of student, teacher and occasionally, parent or administrator. The student agreed to fulfill the requirements set forth in the contract in order to receive credit for twelfth grade physical education.

The following table outlines details of the schools' physical education programs. The figures indicate the number of home schools that do or do not provide the listed services.

Table 9.5
Components of Contracted Physical Education Programs

Site	Yes	No
School provides time for physical education	3	3
School provides site (open gym, etc.)	2	4
School pays for alternate site, costs	1	5
School provides materials	6	0
School provides transportation	1*	5
Activities		
Large variety of approved outside activities	4	2
Sports (varsity, intramural) participation accepted	5	1
Summer activities accepted	1	5
School provides some planned outside activities	2	4
Written assignments required	6	0
Tests required to pass	1	5
Supervision		
Student's word accepted as proof of participation	2	4
Supervisor's/Parent's word required	4	2
Meetings with physical education teacher required	2	4
Students check in and return contracts at home school	5	1
Problems with students not checking in, or returning contracts	5	1

*To home school from AVTS--for testing

Frequency of "check-in" requirement	
weekly	1
quarterly	1
semester	2

Problems most frequently cited by teachers included: student unwillingness to return completed contracts; student unwillingness to give up his/her free time in order to pass physical education; conflict with student working hours; transportation problems for students wanting to go to gymnasiums, bowling alleys, etc.; extra costs for students at bowling alleys, golf courses, skating rinks, etc.

Only one program appeared to be running smoothly, with no complaints from parents, students, or the teacher. The components of this particular program which distinguished it from those at the other six schools were:

- The program was offered to all eleventh and twelfth graders, not AVTS students only.

- The school allocated money to pay for rental of skating rinks, bowling alleys, lessons, etc.

- The school provided planned after-school and nighttime programs both at the school and elsewhere.

- Summer league sports participation was accepted for partial credit.

- The school arranged special programs--riding lessons, boating courses--for which students paid.

An important factor which contributed to the success of the above program was the allocation of school funds to pay expenses. Also, the program was planned as an integral part of the home school curriculum as well as that of the AVTS. The feasibility of implementing similar programs at other schools is difficult to assess; most schools do not have money to set up such a program.

Summary

Scheduling at the home schools has been simplified through elimination of separate two-week-about vo-tech sections. Future AVTS students are able to take the same courses as all other students.

Students from all courses of study are electing to enter the twelfth-year program. The greatest number of students who enroll at the AVTS have taken a General or Business program while at home school; the smallest number come from the College Preparatory curriculum.

Enrollment in seventeen subject areas offered to all tenth and eleventh graders were examined for changes. The study shows that seven out of seventeen tenth grade subjects have had significant enrollment changes since 1977. A rise in Home Economics, Industrial Arts, and Vocational Agriculture course enrollment indicates that AVTS-oriented students are taking these subjects as prevocational exploration.

Six out of seventeen eleventh grade subjects showed large shifts in enrollment. There was a rise in the number of students taking typing and Business courses; both those subjects are recommended prerequisites to AVTS enrollment.

Art enrollments for tenth and eleventh grade have almost doubled since 1977.

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Physical education programming for twelfth-year students has created a headache for home school physical education teachers. Five out of the six schools are dissatisfied with their current contract system and are interested in alternative solutions to fulfillment of the senior physical education requirement. The school which has had no problem has a program which is distinctly different from the others and may not be easily adaptable at the other sending schools without added costs.

HAVE PROSPECTIVE STUDENTS BEEN ABLE TO MEET THEIR GRADUATION REQUIREMENTS BY THE END OF ELEVENTH GRADE?

Students who enroll at the SUN AVTS are required to have completed their minimum graduation requirements by the end of their eleventh grade year. Minimum senior high school requirements, according to the regulations of the State Board of Education, are:

- --Three planned courses in English.
- --One planned course in mathematics.
- --One planned course in science.
- --Two planned courses in social studies.
- --Satisfactory completion of a planned health education program.
- --Satisfactory completion of a planned physical education program.

Prospective students must take the required courses--seven in all, plus health and physical education--during their tenth and eleventh grade years. Health courses, which must be taught at the junior high/middle school and senior high levels, are now included in the eleventh grade curriculum. Physical education, which must be taken in every grade, is set up as a contracted program for senior AVTS students. A memorandum outlining minimum required courses for graduation was prepared and submitted to the Commissioner for Basic Education for approval. (See Appendix)

All students have ample time during tenth and eleventh grade to schedule the required courses. Students who fail required courses are permitted to make up the requirements in a number of ways which vary from district to district, including summer school, tutoring, and correspondence courses approved by the local school board. The student who lacks a requirement is also given until the end of his/her senior year to make it up. Only one of the sending school districts conducts a summer school program; however, students from other school districts are eligible to attend.

Guidance counselors at the home schools were contacted at the end of the 1979-80 school year and asked to indicate the number of students who planned to attend the SUN AVTS in the fall, but lacked required credits and would have to make up courses. Results of the informal survey showed that approximately 20 percent of the students who intend to enter the AVTS in fall 1980 will have to make up courses during the summer. These students lacked credits not because they had been unable to schedule the required courses, but because they had failed one or more of the courses. This percentage should be reduced considerably by the start of the 1980-81 school year, after summer school sessions are completed.

Summary

Prospective SUN AVTS students have ample time to schedule the minimum requirements for graduation; however, failure of required courses appears to be a problem. Summer school, tutoring, and correspondence courses are available to students who lack credits. An alternate solution would be to permit such students to attend the AVTS even if they lack the credits to earn a high school diploma; the vocational training received at the AVTS would be of great value to such an individual with or without a diploma.

Section Eleven

WAS THERE ANY CHANGE IN THE ATTITUDES OF THE AVTS TEACHERS AS A RESULT OF THE NEW PROGRAM?

Teacher attitudes were measured mainly through use of informal interviews during the school year. Faculty members were interviewed at least three times during the course of the evaluation. To determine to some extent the type of faculty at the AVTS, the Teacher Attitude Inventory (TAI) was administered at the beginning of the 1978-79 school year.

Teacher Attitude Inventory Results

The TAI yields scores on four subgroups of attitudes: 1) Rigidity; 2) Control; 3) Professionalism; 4) Individualism.

The TAI is a 24-item checklist for which the maximum total score is 120. Maximum score on each of the four subscales is 30.

Twenty-one teachers were given the TAI. Table 11.1 shows the mean, median and standard deviation of the subscale and total scores.

TABLE 11.1
TAI Results

	N	Mean	Median	S.D.
Rigidity	21	22.9	22	3.08
Control	21	21.238	21	2.773
Professionalism	21	24.425	25	3.414
Individualism	21	20.19	19	3.076
Totals	21	88.524	89	6.33

Interpretation: a higher total TAI score (over 100, out of 120) indicates that the subject taking the test is more flexible, interested in new methods and ideas, and willing to encourage students in programs of individualized instruction (TAI manual; n.d.).

A lower total score (below 85) would indicate that the subject prefers a more traditional, self-contained classroom, possibly with group-directed teaching rather than individualized instruction.

Scores on the subscales, though not validated, indicate attitudes "toward flexibility and experimentation (Rigidity), toward discipline (Controlling), toward professional growth (Professionalism), and toward personal, more individualized instruction (Individualism)." (TAI manual; n.d.) No norms are available for the TAI.

Scores for the AVTS faculty indicate that it is basically more conservative, with a mean and median score of approximately 89. Only one faculty member scored above 100.

Subscale scores are inconclusive; most fell into the middle range where interpretation is extremely difficult. Overall, the scores indicate that the SUN AVTS faculty is of a somewhat conservative type, favoring more disciplined, traditionally organized classroom instruction.

Faculty Interviews; Year One

During the year the AVTS teachers were interviewed to determine teacher attitudes toward the new program and to discover whether they had identified any differences between their twelfth-year and three-year students.

The twenty teachers were requested to compare their twelfth-year and three-year students with respect to attitude, in-class behavior, motivation, and their ability to learn theory and skills. Table 11.2 is a breakdown of the teachers' responses.

TABLE 11.2

	12th-year Students Better	No Observable Difference	Three-year Students Better	No Response (due to Small 12th-year Sample)
In-Class Behavior	40%	50%	5%	5%
Attitude Toward Learning	50%	35%	10%	5%
Motivation	35%	55%	5%	5%
Grasp of Theory, Skills	30%	65%	0	5%

Ninety percent of the teachers responded that their twelfth-year students were better than or equivalent to three-year students in three categories: behavior, motivation and ability to learn. Eighty-five percent felt that the twelfth-year students were better than or equivalent to three-year students in attitude.

The mid-year interviews revealed that the majority of teachers favor the new program. Forty percent of the teachers stated that they would have to make changes in their instructional methods: most of the changes involved reducing the amount of time spent on certain lessons. Several teachers remarked that the transitional period, during which they would be teaching both twelfth-year and three-year students, would be the most difficult for them.

Forty percent of the AVTS faculty were concerned as to whether they would be able to cover the material that they had covered in the three-year program.

Fifteen percent of the teachers indicated that some of their twelfth-year students had had problems adjusting to full-time vocational study, and that boredom among the full-time students could affect their attendance.

Twenty-five percent of the teachers indicated that they anticipated having some problems adjusting to the new program, mainly in becoming accustomed to teaching a larger group of students all at the same level. Several teachers felt that they would have some serious problems trying to supervise large groups of beginners working at separate work stations or with dangerous machinery, without any advanced students to assist those at a lower level.

Of those teachers who recommended certain courses at the home school to their students, 75 percent reported that the students had been unable to enroll in courses they desired, because of the limitations of home school scheduling. Asked to assess the academic backgrounds of their twelfth- and three-year students, 70 percent of the teachers felt that their tweflth-year students were lacking in language or math skills, while 85 percent felt that their three-year students were deficient in the same areas. Twelfth-year students appear to have received a better grounding in math: 45 percent of the teachers judged their twelfth-year students to be lacking in math skills, while 70 percent felt their three-year students were weak in math.

Comments made by the AVTS faculty about their tweflth-year students:

"They are more serious-minded. They know they have to get it in one year."

"They do pick up theory a bit better, probably because of the continuity."

"They get no relief from tedium..this turns some kids off."

"If they miss three days, it shows up...absences mean more...they can fall behind very quickly."

"They have a more mature attitude, but not necessarily a better attitude toward learning.

Members of the AVTS faculty were informally interviewed a second time at the year's end. At that time, they were asked some open-ended questions about the success of the twelfth-year program in their shops. Suggestions, comments and criticisms were also solicited. Results are tabulated below:

How did the skills and knowledge acquisition of your twelfth-year students compare to three-year students?

Not as good	Equivalent	Better	Impossible to judge
25%	65%	5%	5%

Could you recommend your twelfth-year students to industry as highly as your three-year students?

No	Yes	Unsure
5%	85%	10%

Did you cover all the material you wished to cover in one year?

No	Yes
40%	60%

Did you find your twelfth-year students to be more mature or more motivated?

No	Somewhat	Yes
45%	35%	20%

Did your twelfth-year students have problems adjusting to full-time study?

Yes	Some minor problems	No
15%	30%	55%

Was the twelfth-year program successful in your shop this year?

No	Yes	Yes, but needs some changes
0	75%	25%

Do you think that the SUN AVTS should provide more activities for full-time students?

No	Yes
45%	55%

When were most of your twelfth-year students ready to go out on co-op?

May	March-April	Not during the school year
25%	35%	40%

Comments and suggestions:

> *"We need more good students, interested ones..the school needs better P.R."*
>
> *"Don't exclude students from the program if they lack a few credits."*
>
> *"The school needs a better recruiting program."*
>
> *"Make the program postsecondary--thirteenth-year."*
>
> *"VICA should be reorganized--have some all-school activities."*
>
> *"I would like to have more equipment so more kids can work on a process at a time."*
>
> *"Perhaps offer a mixed trades program, where a student could learn several construction or auto trades."*
>
> *"It is both difficult and dangerous to supervise an entire class of beginners at the year's start."*
>
> *"My biggest problem was calming the kids down after..someone at home school told them that they didn't belong there anymore. This upset them a lot...it's important to them."*
>
> *"No changes necessary."*

Less than half the faculty felt that more activities were needed for the twelfth-year students. Those who were interested in more activities suggested organizing all-school clubs related to vocational study: sports car clubs, road rallies, stereo clubs, fashion shows, etc. Most shops at SUN have active chapters of VICA, the Vocational-Industrial Clubs of America. Teachers indicated that more inter-shop activities might be organized through VICA. One teacher who had tried to organize extra activities in his shop found, however, that lack of time hampered his efforts.

Results of the year-end interviews revealed that one-fourth of the AVTS teachers felt that their twelfth-year students did not come up to the skill level of three-year students. The problem appeared to be difficulty in condensing the course of study to fit into two semesters, rather than three. Most of the teachers who indicated that they had not covered all their material also stated that they would be able to adjust to one-year format. The majority of the faculty was pleased with the results of the first year, and was confident in recommending students to industry.

Interviews: Year Two

Year Two interviews were conducted at the end of the 1979-80 school year. A 50 percent sample of the faculty was informally interviewed, using open-ended questions.

Results

Fifty percent of the interviewees felt that the twelfth-year program had been successful in their shop. Twenty-five percent were undecided: the program had been "mostly successful" for them, or "not as successful as before." The other 25 percent felt that the program was unsuccessful, because of the loss of instructional time. These respondents indicated that they were unable to teach all the important aspects of the trade in one year.

Eighty-seven percent of the respondents stated that they had cut some material from the course of study due to the time reduction. Of these, 37.5 percent felt that they were cutting too much out of their curriculum; 50 percent indicated that the material cut did not adversely affect their program. The remaining 12.5 percent had not cut material.

Interestingly, 62.5 percent felt that their twelfth-year students were of "better quality" than those they had been getting in their shops previously. Teachers cited better math skills, better command of grammar, and fewer discipline problems. Twenty-five percent felt that they were getting poorer students. The remaining 12.5 percent indicated that there was no difference.

Asked about problems with the twelfth-year program, teachers mentioned the following problem areas:

1. The reduction in instructional time: teachers who did not favor the twelfth-year program invariably cited the time loss as the biggest problem. These teachers emphasized that the quality of a twelfth-year AVTS education was not as good as that of a three-year AVTS training program.

2. Enrollment/recruitment practices: three-fourths of the interviewees indicated that SUN AVTS recruitment practices need much improvement and that they were willing to take part in recruitment activities, such as home school visitations.

3. Elimination of shops: this was unanimously mentioned as a source of discontent among the faculty. Many were fearful that their shops would be eliminated because of lagging enrollments. This fear has undoubtedly adversely affected the attitudes of AVTS teachers toward the twelfth-year program.

4. The twelfth-year physical education program: most teachers reported that their students were quite unhappy with the contract system. One teacher suggested that the contract system might discourage students from enrolling at the AVTS.

5. Loss of upper level students/increase in the teacher-student ratio: several teachers reported that the loss of experienced students who could assist new students while the teacher was occupied at another work station presents a problem and possible hazard when students are working with dangerous equipment. One teacher indicated that having a large group of beginners would automatically reduce the amount of individual attention that each student would receive.

6. VICA: while many teachers said that their VICA membership had increased, they felt that twelfth-year students would not have much chance of succeeding in mid-year skill competitions.

7. Home school problems: several teachers stated that their twelfth-year students felt "forgotten" by their home schools. One teacher, however, felt that twelfth-year students were called to the home school too often.

8. Home school attitudes: several teachers felt that the home schools still have a poor attitude toward the AVTS and its students, and that home school preparation and planning assistance to potential AVTS students could be improved.

Conclusions

Results of the TAI show that the SUN AVTS faculty is of a "middle of the road" type, tending toward conservativism.

First-year interviews revealed that most teachers rated their twelfth-year students as better than or equivalent to three-year students, in behavior, attitude, motivation and academic background. Second-year interviews showed similar results.

Most teachers have had to eliminate some material from their course of study. Thirty-seven percent of the interviewees felt that the necessary cutting of certain parts of their curriculum did affect the quality of the program.

Complications resulting from the elimination of one shop due to lack of enrollment have negatively affected the attitudes of many SUN AVTS teachers toward the twelfth-year program, which precipitated the drop in enrollment.

At the end of the 1979-80 school year, half the faculty favored the twelfth-year program, although many teachers indicated that some problems do exist. Another 25 percent were undecided or unsure about the program; these respondents felt that with improvements, the twelfth-year program could succeed in their shops. The remaining 25 percent were opposed to the program, citing lower quality of training, less training time, and low enrollments as the source of their objection.

ARE MORE HANDICAPPED AND SPECIAL NEEDS STUDENTS ENROLLED AND IS THE PROGRAM BENEFICIAL TO THEM?

Handicapped students at the SUN AVTS are mainstreamed. Interviews revealed that twelve of the shop teachers at the AVTS had had handicapped students in their classes at one time or another. Teachers in the more technical shops were concerned that an Educable Mentally Retarded student might not be able to succeed in a highly technical program. However, those teachers who had some experience teaching mentally handicapped students stated that they would not discourage having them despite the extra time and attention they require. Some teachers expressed doubt that they would have sufficient time to spend with special needs students in the twelfth-year program; despite the time limitations, however, many teachers felt that the full-time format would be beneficial to EMR's.

According to the program proposal, the twelfth-year format could be quite advantageous to a handicapped student. The additional time spent at home school could be spent gaining basic educational skills, as well as exploring different occupational areas and taking prevocational courses. Counselors, teachers and psychologists could then assist the students in selecting the most appropriate vocational program. The student would enter the AVTS full-time for one year, where the continuity of instruction would be an aid to his/her learning and retention of skills. Mainstreaming--the removal of the "special ed" label--would improve the student's self-esteem.

Several AVTS teachers however, point out that the twelfth-year reduction in instructional time could be a disadvantage. Some also felt that with a full class twenty or more students at the same instructional level, they would not have enough time to work with a mainstreamed mentally handicapped student, and there would be no advanced students to assist those at a lower level. Other teachers expressed concern that it would be difficult to hold the attention and interest of a mentally handicapped student with full-time instruction.

The main questions raised in interviews with the AVTS teachers, therefore, are:

- Is 1080 hours of vocational instruction enough to train a handicapped (especially mentally handicapped) student to succeed in competitive employment?
- Does mainstreaming in the twelfth-year program make individualized instruction more difficult?
- Is the twelfth-year program format advantageous to the mentally handicapped in terms of attention span and self-esteem?

During the 1978-79 school year, nine handicapped students were enrolled at the SUN AVTS. Two of these, an EMR and a physically handicapped student, were enrolled in the twelfth-year program. In 1979-80, nineteen exceptional students were enrolled. Of these, twelve were first-time entries in the twelfth-year program. In two years, therefore, fourteen handicapped individuals with no previous AVTS experience have entered or completed the twelfth-year program.

The following tables provide some basic information on the fourteen handicapped students who entered the twelfth-year program at the SUN AVTS.

TABLE 12.1
Handicapped Students in the SUN AVTS Twelfth-year Program

Completers

Handicap	Sex	Shop	Grade	Absence Rate	Outcomes
EMR	F	Apparel	87(B)	2.7%	Graduated--is seeking employment in apparel manufacturing.
EMR	F	Apparel	80(C)	2.2%	No available information.
EMR	F	Welding	75(D)	5.5%	Graduated--could not be recommended by the AVTS. Entered military service.
EMR	M	Welding	72(D)	6.6%	Graduated--entered military service
LD	M	Auto Body	90(B)	5.5%	Graduated--is seeking employment unrelated to auto body trade
LD	M	Masonry	79(C)	6.6%	Graduated--no definite plans.
Multiple	F	Apparel	77(D)	11.6%	Graduated--could not be recommended by AVTS --was placed on co-op during the year and subsequently fired.
Multiple	M	Drafting	86(B)	6%	Graduated--is attending Johnstown School for the Handicapped.

TABLE 12.2
Handicapped Students in the SUN AVTS Twelfth-year Program

Leavers

Handicap	Sex	Shop	Outcome
LD	M	Auto Mech.	Withdrew in September from both schools (W-6). Intended to work full-time.
LD	M	Masonry	Withdrew from both schools (W-6) in September. Indicated adjustment problems.
LD	M	Welding	Withdrew to return to home school in September--subsequently dropped out of home school (W-6) in April.
EMR	M	Graphic Arts	Originally enrolled in Machine Shop--was unhappy and switched to Graphics. Withdrew to return to a home school special program, at mid-year.
Multiple	F	Apparel	Was transferred early in the year to a sheltered workshop program at the Laurelton Center.
Physical	F	Commercial Art	Withdrew to return to home school at mid-year. Indicated in exit interview that she had decided to pursue a different occupation.

It is difficult to draw conclusions from the sketchy information provided in the tables. However, it is evident that:

--The majority of handicapped students in the twelfth-year program were Educably Mentally Retarded or Learning Disabled.

--Of the original fourteen students who enrolled in the program, only eight completed; four returned to alternate special programs at the home school or elsewhere, and two dropped out of school completely.

--The shops with the highest handicapped enrollment were Apparel Manufacturing, Masonry, and Welding.

--The average grade achieved by a twelfth-year handicapped student was 81, or a C.

--The average handicapped student was absent 6.7 percent of the school year, or twelve days, compared to 6.52 percent or eleven point seven days for all students at the AVTS.

--None of the handicapped students who graduated are currently working at a job related to their trade. Only two are known to be seeking employment. Two entered military service, and one is continuing his education.

All of the special needs students were interviewed or surveyed during the school year. They expressed a high degree of satisfaction with the program. Most said that they had not enrolled at the AVTS in tenth grade because they "didn't know about it," or "didn't want to."

In assessing the value of the twelfth-year program to special needs students, the criteria defining success becomes an issue. Most commonly, criteria for vocational program success include adequate enrollment, achievement, program completion, and postgraduation placement.

Institution of the twelfth-year program has increased the number of special needs students, although a little more than half of the enrolled handicapped students completed the program. The information already available on the eight students who graduated makes clear that these individuals have been unable to locate jobs. One student was placed on a co-op job during the school year; her job performance was judged inadequate and she was fired. Continued follow-up and monitoring should be done to determine whether these students are able to find and hold jobs.

The CSIU recently received a grant to do an in-depth evaluation of vocational programs for special needs students. This study will examine such issues as program access, facilities, recruitment, enrollments, instructional setting, instruction processes, support services, student attitudes and achievement, and placement. The SUN AVTS will be among the ten schools included in the project.

The three questions posed by AVTS teachers and mentioned earlier in this section will be addressed in detail by this new study.

HAVE HOME SCHOOL ADMINISTRATORS AND STAFF REACTED POSITIVELY TO THE NEW PROGRAM?

Home school principals, guidance counselors and physical education teachers who deal with twelfth-year AVTS students throughout the year, were interviewed to determine their reactions to the twelfth-year program. Counselors are primarily responsible for the selection and placement of students into the vocational-technical school. Principals' duties include home school scheduling and preparing budgets. Home school physical education teachers coordinate the contracted program which was set up to fulfill the twelfth-year physical education credit requirement.

Counselors

Counselors at all six high schools felt that the home school academic program was much improved for students enrolling in the twelfth-year program because of the variety and continuity of the school's regular course offerings, which could be available to all students.

All counselors stated that interested students at their schools will be able to schedule their graduation requirements by the end of the eleventh grade. Two of the counselors, however, felt that there was some confusion over requirements, especially the physical education requirement.

The counselors agreed that the twelfth-year program would be beneficial to a student pursuing a "double track," i.e., taking both vocational training and college preparatory courses with the intent to enter college. Two felt that a twelfth-year student entering college might still have some problems because of lack of academic background.

Four of the counselors had noticed no increase in the number of students interested in completing their requirements early. Two felt that interest in early completion was rising.

All of the counselors agreed that the new twelfth-year program would not make it more difficult for a poor student to qualify. It was felt that the ratio of good, average and poor students entering the SUN AVTS would not be changed.

Only one counselor had noticed any rise in the enrollment of vocational or industrial arts courses offered at the home schools. None of the counselors felt that their school's industrial arts enrollment would be significantly depleted by the loss of seniors to the AVTS.

Two of the sending schools had plans to expand their industrial arts programs through the addition of faculty and the institution of exploratory programs.

All counselors stated that they were trying to improve their counseling of pre-vocational students, assisting them in prerequisite course selection, and so on.

Only one of the six schools was found to offer a summer school program to assist students who lack credits and want to enter the twelfth-year program. This summer school is open to students from other districts. Counselors at the remaining five schools explained that they advise their students to enroll in this program if they lack credits or have failed a course. Two of the schools also recommend tutoring or approved correspondence courses. Two counselors suggested instituting a cooperative summer school sponsored by all five districts.

Counselors at five of the six schools indicated that their schools were enlarging their career education programs. One counselor stated that his school did have a career education program, but that there were no plans to expand it further. All agreed that their career education programs would be more easily accessible to pre-vocational tenth and eleventh graders than they had been to alternating students.

There seems to be no uniform policy on releasing students from the AVTS for home school activities. The counselors stated that after-school activities such as sports are open to AVTS students at all six schools. Four of the schools will occasionally request that AVTS students be released for activities held during the school day. Counselors at the remaining two schools indicated that AVTS students rarely, if ever, will be requested to participate in daytime activities. It appears that after-school activities will be open to twelfth-year students if they wish to participate, but they will be unable to take part in any home school club or activity which takes place during the school day.

Five counselors felt that communication with the SUN AVTS had not yet been simplified, mainly because there was still a large group of two-week-about students attending the AVTS. One counselor commented that his school had developed a system which seemed to work well. Three counselors expressed concern over the loss of contact they had experienced with their twelfth-year group.

Most of the counselors had sent very few EMR or handicapped students to the AVTS. All schools apparently consider each EMR application individually, with teacher, parent and psychologist input. In five of the high schools, no slots are reserved for such students. The largest sending school has a quota system in which a percentage of slots reflecting the actual percentage of EMR students at the school is reserved for EMR applicants. None of the counselors had ever had occasion to refuse the application of an EMR student who wanted to attend the AVTS, although not all their EMR entries had succeeded there.

Other concerns raised by the counselors included:

1. Development of a better communication system for reaching twelfth-year students: counselors felt that they had lost touch with them. A better system for exchange of information and a clarification of the sharing of counseling duties with the AVTS counselors was mentioned.

2. The home school atrition rate: some counselors feared that borderline students would become discouraged and withdraw from school before their twelfth-year, when the AVTS would become available to them as an alternative.

3. The limited availability of activities for the twelfth-year students: communication--informing AVTS students about all high school activities--was emphasized.

4. Career information: an industry visitation program, to help prospective students understand the actual skills and duties involved in the trades offered at the SUN AVTS, was suggested. Counselors stated that the twelfth-year program will work best if awareness programs for prospective AVTS students are begun early (ninth grade) and maintained up until the time of enrollment at the AVTS.

5. Enrollment: counselors expressed concern over whether they would fill their enrollment quotas. Suggested solutions included opening shops to postgraduates and adults.

6. Academic failures: it was suggested that some provisions should be made for students who have failed academically, but who could benefit from vocational training.

7. Physical education: counselors indicated that many students and parents were unhappy with the contracted physical education arrangement; they suggested that some alternatives be investigated.

8. Shop offerings: counselors emphasized that the AVTS must continually re-evaluate its course offerings and offer those which best meet the needs of students, employers and the community.

Principals

Interviews with the six sending school principals were conducted in the spring of 1979. It was felt that these administrators would best be able to identify any effects that the twelfth-year program might be having on the home high schools.

All six principals indicated that they had experienced no cost increases due to the twelfth-year program and did not anticipate any. Five of the sending schools had been forced under the two-week-about program to create separate vo-tech sections to accommodate the two-week-about students. All principals agreed that their vo-tech sections had had too low a pupil-teacher ratio and that the institution of the twelfth-year porgram made separate vo-tech sections unnecessary.

All six principals stated that their schools would be able to absorb the additional tenth and eleventh grade students without requiring extra staff, and that they did not anticipate cutting staff due to loss of twelfth grade students to the AVTS.

The principals indicated that to their knowledge, no students were scheduling substitute courses such as industrial arts or vocational agriculture. Two principals stated that these areas were already filled to capacity in their schools and had been prior to the implementation of the twelfth-year program.

All six administrators agreed that the twelfth-year program would greatly simplify the scheduling process for them, and would open up many courses previously unavailable to vocational students, including college preparatory classes.

At five of the six high schools, alternating students were not required to take extra academic courses while at the home school. Only one school had required their AVTS students to double up on academics; the academic programs for two-week-about students were found to vary greatly from school to school. Principals agreed that the academic program for twelfth-year students would be more comprehensive and more consistent from school to school.

Teachers

Home school physical education teachers were interviewed in the spring of 1980 to determine their reactions to the twelfth-year physical education arrangement. A more detailed outline of the physical education program can be seen in Section 9, Home School Scheduling.

All six teachers indicated that they had set up a contracted program, in which the student signed a contract to participate in an approved physical activity and received credit upon return of written proof of his/her participation.

Approved activities, written assignments, tests, and supervision requirements varied from school to school.

Five of the six teachers expressed unhappiness with the contracted arrangement. Problems included falsified proof-of-participation sheets or cards, difficulties in reaching twelfth-year students to collect the cards and/or written assignments, unwillingness on the part of students to take part in physical education on their own time, added expenses and transportation problems for students, and conflict with working hours for employed students.

"It's been handled very poorly," said one physical education teacher. Interviews revealed confusion over the permanence of the contracted arrangement; some teachers had been told that the contract system was a temporary arrangement and that twelfth-year physical education would be waived in the future.

One of the six schools had achieved a workable solution by combining twelfth-year AVTS physical education with an already in-place contracted elective program offered to all eleventh and twelfth grade students at night and after school. This teacher had had no complaints from students or parents about twelfth-year contracting. Teachers at the other schools indicated that they had received complaints.

Conclusions

Overall, home school reaction to the twelfth-year program is very positive. The program has solved the problem of two-week-about scheduling and isolation of AVTS students in separate vo-tech sections while at home school. Principals indicate that costs have not increased as a result of the twelfth-year program.

Concerns expressed by counselors and teachers indicate that there are some problems with the twelfth-year program, primarily with contracted physical education and the low enrollments in some shops. All staff members showed an interest in working to improve the program by bettering communications and AVTS awareness/recruitment practices, seeking solutions to the physical education problem and continuous re-evaluation of AVTS offerings.

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APPENDIX

Student Followup Card

Dear SUN AVTS Graduate:

During your senior year you participated in a CSIU-sponsored study of the one-year and three-year programs. As a continuing part of our study we would like to know what the 1979 graduates are doing. Please fill out the attached card and return it to us as soon as possible--postage is prepaid.

Your answers will help us to determine which program has been most beneficial to its graduates. Any comments you may have are welcome. Thanks very much for your help.

Jodie Thomas
Research Specialist
CSIU
P. O. Box 213
Lewisburg, PA 17837

Parents or Guardians: If your son or daughter is away from home or unable to respond, please place a check in the square below, fill out the questionnaire the best you can and return it to us.

☐ I am filling out the questionnaire for my son/daughter

Name ______________________________

Current address ______________________________

____ Employed ____ Homemaker ____ School

____ Laid off ____ Military Service ____ Unemployed

If employed, where are you working? ______________________________

____

What is your job? ______________________________

Is your work related to the trade you studied at the SUN AVTS?

____ Highly related ____ Somewhat related ____ Not related

Do you feel your vocational training was worthwhile? ____ yes ____ no

How satisfied are you with your present job? ___ I am very satisfied

___ I am satisfied ___ I am dissatisfied ___ I am very dissatisfied

If in school, what are you studying? ______________________________

What school are you attending? ______________________________

Comments: ______________________________

____

CSIU Student Survey

The CSIU is conducting this survey to find out how the students at the SUN AVTS feel about their school. Please be sure to write in your shop and circle your section. For the first 22 items, just check the answer that's closest to your own. Please answer all questions. Even the shortest answers will be appreciated. Thank you!

NAME ______________________ SHOP ______________________ SECTION A B C

	EXCELLENT	GOOD	AVERAGE	FAIR	POOR
How would you rate the training you are getting here at the SUN AVTS?	____	____	____	____	____
How would you rate the program you are enrolled in?	____	____	____	____	____

	DEFINITELY YES	YES, SOMEWHAT	DON'T KNOW	NO, NOT MUCH	DEFINITELY NO
Do you feel that your teacher is genuinely interested in your progress?	____	____	____	____	____
Do you feel that your teacher is a good teacher?	____	____	____	____	____
Is the SUN AVTS preparing you for a worthwhile career in your trade?	____	____	____	____	____
If you could do things over, would you decide to come to the SUN AVTS?	____	____	____	____	____
Would you recommend the SUN AVTS to your friends and relatives?	____	____	____	____	____
(Half-time students:) Would you have preferred a full-time program?	____	____	____	____	____
(Full-time students:) Would you have preferred a half-time program?	____	____	____	____	____
Do you ever get tired or bored with being in shop?	____	____	____	____	____
Do you prefer being at SUN to being at home school?	____	____	____	____	____
Do you miss home school activities?	____	____	____	____	____
Is it difficult or inconvenient to participate in home school activities?	____	____	____	____	____
(Half-time students:) Do you like alternating between the AVTS and your home school?	____	____	____	____	____
(Full-time students:) Do you miss having academic courses as a senior?	____	____	____	____	____
Do you miss your friends or the social life at home school?	____	____	____	____	____
Do you see less of your friends than you did when you attended home school?	____	____	____	____	____
Did many of your friends also choose to attend SUN?	____	____	____	____	____
Have you remained close to your home school friends?	____	____	____	____	____

	DEFINITELY YES	YES, SOMEWHAT	DON'T KNOW	NO, NOT MUCH	DEFINITELY NO
Is the trade you're studying at SUN the one you want to work in after graduation?	____	____	____	____	____
Are you satisfied with your own achievement here at SUN?	____	____	____	____	____
Has anyone ever made fun of or looked down on you because you are a vocational-technical student?	____	____	____	____	____

Did you ever seriously consider dropping out of school? ____________________

If you had not enrolled at the SUN AVTS, do you think you would have dropped out? ____________________

Are you enrolled in the shop of your first choice? YES ____ 2ND ____ 3RD ____ 4TH ____

Would you rather be in a different shop? ____________________

Are you involved in any activities at home school? YES ____ NO ____ What activities? ____________________

Are you involved in any activities at the SUN AVTS? YES ____ NO ____ What activities? ____________________

What do you plan to do after graduation?

____ Work in trade

____ Continue education

____ Work outside trade

____ Enter Military service

____ Marriage

____ Unsure

____ Other (Describe:) ____________________

(Full-time students:) Why didn't you enroll at the SUN AVTS in tenth grade? ____________________

What are the advantages of attending the SUN AVTS? ____________________

What are the disadvantages of attending the SUN AVTS? ____________________

Is there anything you would like to change about the SUN AVTS? ____________________

Is there anything you would like to change about your home school? ____________________

Why did you decide to come to the SUN AVTS? ____________________

ALL ANSWERS ARE CONFIDENTIAL

THANK YOU FOR PARTICIPATING IN THE SURVEY

MEMORANDUM

TO: Frank S. Manchester, Commissioner for Basic Education

SUBJECT: Minimum required courses for graduation, SUN Vocational-Technical School

Section 5.74 (a) (1) English A student shall take English in grades 9, 10, and 11 and may elect semester courses in speech, reading, grammar, literature, etc. If a student fails a required course he may take additional instruction in approved summer school, correspondence courses, etc., or repeat eleventh grade.

The Board of Education has adopted a policy under Section 5.74 (b) Subject Acceleration that ninth grade English is equal to standards used in the equivalent senior high school courses.

(2) Mathematics. All students shall complete at least one planned course.

(3) Science. All students shall complete at least one planned course.

(4) Social Studies. All students shall complete at least two planned courses.

(5) Health Education. All students shall complete a planned program in compliance with Section 5.25 (a).

(6) Physical Education. All students shall participate in a planned program of physical education in each grade. During 10th and 11th grades, additional instruction time will be provided in life-time physical activities. During the 12th grade, each student shall contract in writing between the student, the Physical Education Department and the administrator. The contract shall adhere to the Guidelines for Designing a Physical Education Activity Contract for Graduation Credit developed by the Pennsylvania State Department of Education.

In future years, we will explore scheduling patterns as suggested by the Department of Education and adopt the one that best meets the needs of the school.